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The Milroy Lectures
ON
ANKYLOSTOMA INFECTION.

Delivered before the Royal College of Physicians of London on March 2nd, 7th, and 9th, 1911,

BY A. E. BOYCOTT, M.A., D.M. OXON.,
LECTURER ON PATHOLOGY, GUY'S HOSPITAL.

LECTURE II.[1]

Delivered on March 7th.

THE DIAGNOSIS OF ANKYLOSTOMA INFECTION.

MR. PRESIDENT AND GENTLEMEN,—In the presence of well-marked anæmia, the only essential in the diagnosis of ankylostoma infection is that the possibility of a parasitic anæmia should be in one's mind. The disease was long unrecognised in Cornwall because it never occurred to anyone that it might be ankylostomiasis; it might, indeed, with some luck have gained a footing in medical literature as "Dolcoath anæmia," the chief characteristics being that it was confined to men working underground and that it was completely refractory to iron and arsenic. One case, at least, whose chief symptoms were dyspnœa and palpitations, went through the hands of several London consultants, whose opinions varied between dyspepsia and cardiac neurosis. Directly the idea that ankylostoma might be at the bottom of the matter occurred to anyone—in the present instance, to J. S. Haldane—the stools were examined and found to be full of eggs, and so the mystery was cleared up. In the same way in Porto Rico in 1899 one-third of 36,000 deaths were due to "anæmia," which was supposed to be caused by poor food and unhygienic conditions; it was only towards the close of that year that Ashford found that the condition was constantly associated with an eosinophilia, was by this led to examine the fæces, and so demonstrated that this enormous mortality was due to ankylostomiasis. The fact that the parasite occurred in the Southern United States had been known to the curious for a long time before Stiles in 1901 drew attention to the fact that it was the cause of serious endemic disease among the whole agricultural population.

In definite cases of ankylostomiasis there is no difficulty in making the definitive diagnosis of ankylostoma infection. The eggs are quite different from those of any other human parasite and occur in the stools in large numbers. If confusion arises, it is generally from some of the vegetable remains which one finds with all sorts of queer objects (mites, snails' tongues, &c.) in fæces. It is, however, obvious that it is not always easy to decide whether all or some of the illness in any given case of infection is due to the worm. This is especially difficult where, as, for example, in Assam, nearly all the natives are infected, and other diseases, such as malaria and kala-azar, are common enough. Quite recently, for example, Noc[2] has pointed out that in Cochin-China the difficulties of estimating the share of ankylostoma in causing illness are such that he inclines to the view that the parasite has a considerable share in producing "beri-beri." In Cornwall the chief source of difficulty in this connexion is miner's phthisis, the symptoms of which are by no means always free from ambiguity. The effect of anthelmintic treatment is the most useful test.

METHODS OF DETECTING EGGS IN FÆCES.

The difficulties of diagnosis are, however, considerable when infection is slight and no obvious anæmia is present. Accurate examination of the blood by the Haldane-Gowers hæmoglobinometer may be of assistance. With apparently healthy adult males any reading below 85 per cent. should excite suspicion. As a rule, plenty of eggs will be found in the fæces of even slightly anæmic cases and in many of those who have their full quantum of hæmoglobin. If few worms are present the discovery of eggs may be very difficult. Such a condition occurs especially in persons who have received specific treatment and from whom it is desired to expel absolutely every worm. In the ordinary way fæces are examined microscopically for eggs by smearing up a small piece, with the addition of water if necessary, into a sufficiently thin film on a glass slide. In the cases we are considering eggs will be found in such a preparation only by luck, and many infected stools will be passed as normal. Most of the fine mud can be removed by emulsifying a piece of fæces of the size of a nut and vigorously shaking up with water in a test-tube three-parts full. After standing for ten minutes all the eggs have fallen to the bottom and most of the supernatant fluid can be poured off. By repeating this process three or four times any eggs present can be obtained mixed only with the larger fragments, and the chance of finding them is very much better. Still further separation can be effected, as in Bass's method,[3] by taking advantage of the specific gravity of the eggs (about 1100). By washing with a solution of calcium chloride of specific gravity 1050 (12 per cent. hydrated salt) two or three times after washing with water, a good deal of light material can be got rid of, and by subsequently adding calcium chloride of specific gravity 1250 (55 per cent.) the eggs can be floated to the top and so separated from the crystals and heavy débris. Centrifugalisation saves time. Thus in one series of 315, 79 (25 per cent.) infections were found by direct examination and 38 more (12 per cent.) after washing.

The most accurate method of finding a few eggs appears to be cultivation and discovery of the larvæ. A convenient method of procedure is as follows. In the bottom of an ordinary 4 in. Petri dish make a pile of 5 circular pieces of blotting paper about 2½ in. wide and ¼ in. high. Fill the dish with water nearly up to the level of the top of the papers and cover the island of paper with a thick layer of the fæces; incubate at 30°–36° C. for from five to seven days. When the larvæ hatch they swim away from the fæces into the water, which remains almost clear, and by centrifugalisation two or three can be found without much difficulty.

At the International Congress on Industrial Diseases held at Brussels in September, 1910, Bruns, who is in charge of the laboratory work in connexion with ankylostomiasis in the Westphalian coal-field, stated that of men with slight infections only 40 per cent. were diagnosed by direct microscopic examination, 55 per cent. by microscopic examination after gravity separation of the eggs, and 99 per cent. by the method of culture. This means that of every 99 men found infected by the culture method only 55 were diagnosed by microscopical examination, and that with every 99 positive by culture one case occurred which was negative to culture and positive to microscopic examination. There is no evidence to show how many cases of infection were not revealed by any of the methods. It is well known that some samples of stools are so noisome that the eggs will not hatch in them, so that the culture method cannot be regarded as infallible, though it is undoubtedly the best process available under all circumstances.

Other sources of error arise from the fact that the stools of an infected person may contain no eggs. It has already been pointed out that in experimental infection a period of from seven to ten weeks elapses after larvæ have entered the body before eggs are found in the stools.[4] Taking the shorter period as that which would most probably apply to large natural infections, there is therefore a considerable time after infection when examination of the fæces will necessarily prove negative. Eggs will also be absent if only male worms are present in the bowel;[5] it is inconceivable that under these circumstances enough worms should be present to cause any material illness, and such individuals are of course innocuous to others. It is also a matter of fairly common experience that eggs may not be found for a few days after anthelmintic treatment, but may reappear a week or two later. It is possible to explain these cases by an assumption that the eggs which ultimately appear have been laid by worms which were not fully developed and had not reached the intestine when treatment was administered. But in many instances so recent a reinfection can be excluded with considerable certainty, leaving only the usual and reasonable explanation that the shock of anthelmintic drugs temporarily paralyses oviposition.

Another source of failure to find eggs in the fæces produced for examination by an individual suspected of infection has been introduced along with schemes of compulsory examination and treatment which have for their object the

[1] Lecture I. was published in THE LANCET of March 18th, p. 717.
[2] Annales de l'Institut Pasteur, vol. xxii., 1908, pp. 896 and 955.
[3] Hookworm Disease, 1910, p. 175.
[4] Lambinet (Deutsche Medizinische Wochenschrift, 1904, p. 1843) showed that with *Ankylostoma caninum* in dogs the interval is only three weeks. Is the rate of development of the parasite proportional to the rate of metabolism (duration of life) of its host?
[5] A single male ascaris is not infrequently found post mortem.

exclusion of infected persons from certain places—e.g., the underground workings of a mine. If such procedures prove objectionable—as in fact they do—it is obvious that fæces which contain no ankylostoma eggs are likely to become an article of commerce, and it has actually occurred in the coal-fields of Belgium and Westphalia that infected workmen have presented for examination stools which were passed by somebody else. Hence policemen were set to supervise the personal production of samples for examination.

While, therefore, in many cases the diagnosis is simple enough, there are a good many circumstances which render the examination of fæces fallacious. These are especially frequent when infections are relatively slight and become of considerable practical importance when it is sought to establish some system of quarantine.

EOSINOPHILIA.

The only point on which a diagnosis might be made in the first two or three weeks after infection is the skin eruption which marks the entrance of the larvæ. In characteristic cases and under conditions of exposure to infection a diagnosis might well be based on this alone, sufficiently positive, at any rate, to justify precautionary measures of quarantine. During the next four or five weeks examination of the blood may be of the greatest assistance. Most cases of ankylostoma infection show a considerable increase in eosinophile leucocytes in the circulating blood, and this increase is definitely perceptible about three weeks after infection. The following table shows the results of blood examinations made after experimental infections by the skin (Dr. Leathes) and by the mouth (myself):—

Skin Infection.		*Mouth Infection.*	
Days after infection.	Eosinophiles per cent.	Days after infection.	Eosinophiles per cent.
0	2·0	0	3·4
14	7·4	8	2·6
21	3·0	14	10·0
27	14·4	36	24·0
43	13·4	41	33·6
44	20·8	48	40·4
48	35·6	55	Eggs found.
50	Eggs found.		
52	44·8		

In neither case was the slightest illness produced beyond the most trivial abdominal discomfort. Eggs were very few and far between, and it was only by prolonged examination of thoroughly concentrated samples that they were found at all. Indeed, in my own case daily examinations gave negative results about two days out of three, and both cases would, I am sure, have been, except by accident, passed as free from infection after examination of the ordinary film of unwashed fæces. It will be seen that by a fortnight or three weeks after infection the blood was obviously abnormal; eggs were not found till more than seven weeks had elapsed. Bruns and Müller[6] after experimental skin infection found 5 per cent. eosinophiles after three weeks, 10 per cent. after four weeks, and 25 per cent. after five weeks, eggs being found on the fifty-third day.

The facts which have been ascertained with regard to the general correlation of an eosinophilia with ankylostoma infection are as follows. Of 148 infected men in Cornwall (*A. duodenale*) the percentage of eosinophiles in a differential count of 500 leucocytes on a stained blood film varied between 3 and 73 per cent.: 5 had less than 5 per cent., 4 between 5 and 7 per cent., and 139 showed more than 8 per cent., of whom 123 had more than 10 per cent. and 49 more than 20 per cent.; the average of the whole number was 18·2 per cent. Experience shows that anything over 8 per cent. can be called a definite eosinophilia, figures between 5 and 8 per cent. being suspicious, but not necessarily abnormal. The most marked reaction seems to occur in young people who have been only recently infected and may not have become anæmic at all.

No.	Age.	History.	Hæmoglobin.	Leucocytes.	Eosinophiles.	
			Per cent.	Per mm.³	Per cent.	Per mm.³
1	23	1 month.	80	56,000	66·2	37,000
2	18	6 months.	98	20,600	56·2	11,500
3	17	6 ,,	50	44,000	72·7	32,000

[6] Münchener Medicinische Wochenschrift, vol. lii., 1905, p. 1484.

In such cases there is a veritable eosinophile leucocytosis comparable to that which occurs in trichinosis. In cases of longer standing the number of eosinophiles may be much less, and in cases which have reached a severe degree of anæmia may be even less than normal. No marked examples of this were observed in Cornwall, but the careful work of Ashford with *A. americanum* shows clearly that the responsivity of the marrow may be depressed or almost destroyed by long-continued severe anæmia. Thus in one series[7] 21 per cent. had less than 5 per cent., and only 61 per cent. more than 8 per cent., all the patients having less than 50 per cent. hæmoglobin. In another series of severely anæmic cases 40 per cent. had less than 8 per cent. eosinophiles when first seen. An absence of eosinophilia was found in Porto Rico to indicate a bad prognosis. Dealing with men who were not anæmic, Bruns[8] in Westphalia, with *A. duodenale*, found 8 per cent. with less than 5 per cent. eosinophiles and 84 per cent. with more than 8 per cent., the corresponding figures for Cornwall being 3 per cent. and 94 per cent., though the two series are not directly comparable since in Westphalia the men under examination had been treated on one or more occasions. In Belgian coalminers, Herman and Dascotte[9] found less than 5 per cent. in 18 per cent. of 200 cases, and over 8 per cent. in 65 per cent. Unless the reaction to *A. americanum* is altogether different from that with *A. duodenale*—and the Porto Rico results are against this supposition, the vast majority of worms there being *A. americanum*—the blood-counts of Dock and Bass[10] are inexplicable. In 693 infected persons the count gave less than 5 per cent. in 481 (69 per cent.), the average being 4·1 per cent. Most of the cases were very mild.

The effect of treatment on the eosinophilia is very irregular. In the majority of cases, starting with a marked eosinophilia, the leucocytes gradually come to normal or thereabouts as the worms are expelled and the patient recovers. In very anæmic persons treatment may produce an eosinophilia which subsequently declines. In others, again, the eosinophilia may persist long after all worms have been destroyed. The following examples illustrate these points:—

Case I.			Case II.			Case III.		
Date.	Hb. %.	Eosin. %.	Date.	Hb. %.	Eosin. %.	Date.	Hb. %.	Eosin. %.
May 8th ...	33	16·8	May 12th...	20	0·8	Oct., 1902 ...	48	16·0
,, 16th ...	36	22·4	,, 19th...	28	4·8	Nov., ,, ...	43	18·0
,, 23rd ...	38	16·4	,, 26th...	38	6·8	Aug., 1903...	64	—
June 13th ...	56	14·8	June 9th...	41	4·0	Dec., ,, ...	92	14·8
,, 27th ...	67	8·8	,, 30th...	55	21·2	Feb., 1904 ...	96	13·4
July 11th ...	76	6·0	July 7th...	67	12·2	May, 1905 ...	95	11·2
,, 25th ...	83	4·8	,, 21st...	82	9·6			
Aug. 15th ...	101	8·8	Aug. 4th...	90	2·2			

The third case shows particularly well how a marked eosinophilia may persist for at least two years after expulsion of the worms. The man had been dosed several times, and repeated search failed to reveal any eggs. We examined also in Cornwall four men who had given up underground work some years previously, and in whose stools no eggs could be found; their blood showed an eosinophilia of from 11 to 22 per cent.

Eosinophilia, therefore, is of no value in gauging the results of treatment or in ascertaining whether the worms have died out from an infected person. But under certain circumstances it may be of considerable help in diagnosis. It is, in the first place, obvious that other causes of eosinophilia must be absent, or at any rate infrequent. The causes of eosinophilia other than ankylostoma are: (1) true paroxysmal asthma; (2) pemphigus and the bullous eruptions of the dermatitis herpetiformis group; (3) other animal parasites—i.e., bilharzia, ascaris, oxyuris, trichina, filaria, and tænia.[11] Of these bilharzia and trichina alone give a marked eosinophilia with anything like the regularity seen in ankylostoma infection. Trichocephalus,[12] by far the commonest

[7] American Medicine, vol. vi., 1903, p. 391.
[8] Münchener Medicinische Wochenschrift, 1905, No. 6.
[9] Bulletin de l'Académie Royale de Médecine de Belgique, vol. xxii., 1908, p. 75.
[10] Hookworm Disease, 1909, p. 180.
[11] Journal of Hygiene, vol. iv., 1904, p. 466.
[12] Ibid., vol. v., 1905, p. 278.

intestinal worm in this country, gives no definite reaction. The data recently collected by Schloss [13] show the frequency with which worm infections cause eosinophilia in children in the United States :—

Worm.	Number of cases.	Eosinophilia.		Highest eosin. count.
		Over 8%.	Over 10%.	
Trichocephalus...	31	0	0	6·4
Oxyuris	23	5	3	14·0
Ascaris...	6	2	0	9·2
Hymenolepis	20	7	4	22·6
Tænia saginata	3	2	1	13·2
Total	83	16=19%	8=10%	—

In 83 infections, therefore, only 16 (19 per cent.) had a definite eosinophilia. Blood examinations are, however, not much use for diagnostic purposes in places such as the tropics, where worms are very prevalent, except in so far that the absence of an eosinophilia in a reasonably robust subject may be taken to exclude ankylostoma infection with a fair degree of certainty. But in this country the method is of great practical utility. Worm infections are not common, and as a matter of ascertained fact eosinophilia is distinctly rare in the general population. To investigate this point blood films were obtained from 158 underground workers in uninfected coal, lead, and tin mines, and from surface workers at Dolcoath. Their differential counts contrasted with those of Cornish miners infected with ankylostoma were as follows :—

Percentage of eosinophiles.	Infected miners.		Non-infected miners.	
Less than 1 per cent.	0		29	
1 per cent.	0		49	
2 ,, ...	0	3·4%	32	91·2%
3 ,, ...	4		23	
4 ,, ...	1		11	
5 ,, ...	2		5	
6 ,, ...	1	2·7%	5	7·0%
7 ,, ...	1		1	
8 ,, ...	7		1	
9 ,, ...	9		0	
10 ,, ...	40		0	
15 ,, ...	34	93·9%	0	1·8%
20 ,, ...	22		1	
25 ,, ...	8		1	
More than 30%	19		0	
Total examined	148		158	
Average eosinophiles %	18·2		2·5	

The figures for infected miners suggest that any figure above 8 per cent. may be regarded as indicative of infection. Of the three cases above this figure among the men not infected with ankylostoma, one (8·4 per cent.) had trichocephalus and oxyuris, the other two (23·8 and 25·6 per cent.) trichocephalus and ascaris; all three came from Levant mine, where worm infections are very common.

In holding an inquisition for ankylostoma this method of examination is therefore very useful. It is easy to obtain blood films from the men, and any question of fraud is excluded. I do not know what sort of response one would obtain if one descended on some mine in this country where the terrors of ankylostoma were unfamiliar, and asked 100 men to produce samples of fæces for examination, but I imagine that at any rate a great deal of time would be consumed before such an examination was complete. The same number of men can be examined by the blood film method in a few hours. It is quite unnecessary to count all the films; after a little practice the obviously negative and positive cases can be separated by a short inspection of the slide. As a further proof of the pudding, I give the results of a search recently conducted, in conjunction with Cadman, in likely places for ankylostoma. Films were obtained from a good proportion of men working underground in hot and wet mines; samples of fæces were subsequently obtained from any cases showing more than 8 per cent. eosinophiles.

[13] American Journal of the Medical Sciences, vol. cxxxix., 1910, p. 675.

Locality of mine.	Number of men examined.	Number positive.
Midlothian	94	1 : 15% : Trichocephalus.
Fife	89	0
Fife	24	0
Lancashire	22	0
Yorkshire	57	0
South Wales...	120	0
,, ,, ...	52	0
,, ,, ...	52	1 : 9·5% : Trichocephalus.
Isle of Man	109	2 : 11% Trichocephalus; 24% ; man disappeared.

In all, then, of 619 men, four showed an eosinophilia; on further inquiry none of these had ankylostoma. The method is particularly useful in an inquiry for latent infection, since the reaction is best marked in the young and lusty who are not anæmic—the people, that is, who are least liable to be suspected of infection; and, as pointed out above, it may be very well marked in extremely slight infections, appearing in a recognisable form after infection several weeks before there is any chance of finding eggs in the stools. It is possible that precipitin and Bordet-Gengou reactions may prove of service in diagnosis as they have in other worm infections.

THE CONDITIONS WHICH DETERMINE THE PREVALENCE OF ANKYLOSTOMA INFECTION.

One has learned so much in recent years about the direct transmission of pathogenic parasites from host to host, that one recognises something exceptional in the case of ankylostoma, where the chief circumstances which influence development outside the body are those which condition the prevalence of infection in man. Some parasites, such as the gonococcus or spirochæta pallida, have no life outside the bodies of their special host; others, as trypanosomes, malaria organisms, and cestode worms, oscillate between two different animal hosts; others, again, though apparently capable of no inconsiderable saprophytic life, like the diphtheria bacillus, the typhoid bacillus, or the meningococcus, depend in the main on living animals for the continuance of their existence; organisms which have an active, proliferative, saprophytic life, such as the tetanus bacillus, are now known to be in the minority among the infective agents of important human diseases. In ankylostoma, on the other hand—and the same is, of course, true of the other common nematode parasites ascaris and trichocephalus—the saprophytic phase is of fundamental importance. Since the eggs cannot develop during the parasitic phase, since they cannot again enter the parasitic phase till they have become definitive ("encapsuled") larvæ, and since the larvæ cannot become sexual and multiply without changing the saprophytic for the parasitic phase, it is obvious that the conditions which determine, in the saprophytic phase, the development of the eggs into larvæ are as fundamental to the propagation of ankylostoma as is the existence of a host in which a multiplication of individuals takes place. Its existence in nature is to ankylostoma what the mosquito is to the malarial parasite, or *Limnæa truncatula* to the liver fluke. The influence of various physical circumstances on the life of ankylostoma may be grouped under the following heads :—

1. *Oxygen.*—A free supply of oxygen is necessary for the growth of the embryo, and in its absence the eggs do not hatch and die in a few days. Eggs, therefore, cannot possibly hatch in the intestine. They will very rarely hatch if they are covered in an open dish with a layer of ordinary tap water about an inch deep, though this contains oxygen to begin with and does not offer any great obstacle to diffusion. Even if the water is stirred by bubbling hydrogen through it they seldom hatch, though a fair proportion develop if a good stream of air is kept passing through the liquid. Eggs, therefore, will not hatch if fæces are passed into a good volume of water, nor will those in the interior of fæcal masses make much progress. The eggs are not, however, killed by deprivation of oxygen in less than about 10 days; at low temperatures they would probably survive longer. The young larvæ, as might be expected, also require a free supply of oxygen while they are growing rapidly, though they thrive well in water, but when they become full grown and encapsuled they develop some of the remarkable anaerobic capacities shown by adult intestinal worms, and apparently derive the energy required for their very active movements by fermentation rather than by direct oxidation, as shown by

Weinland in his study of the metabolism of adult ascaris.[14] At this stage they will live for at least two or three weeks, wriggling about all the time, in hydrogen or nitrogen at room temperature; in parallel experiments at 37° C. they died in about 24 hours.

2. *Moisture.*—At any stage of development from egg to encapsuled larvæ desiccation at ordinary temperature is very soon fatal. Hence some degree of wetness in the place where infected fæces are deposited is necessary for the development of infectivity. Ankylostomiasis never prevails very extensively in dry places. In this connexion it should be remembered that really dry districts are uninhabitable, and that the holes and corners in which fæces are apt to be deposited in nature are liable from their situation to be rather specially damp, if only because they are sheltered and evaporation hindered. The influence of vegetation in preventing the surface of the earth from drying is of considerable importance. Thus in Porto Rico the sugar fields are not nearly so heavily infected as coffee and banana plantations. The former are ploughed up every year and the surface is freely exposed to the sun after the crop is harvested, while the coffee bush itself produces shade and in its turn is always shaded by some other tree. The ground beneath banana plants is densely shaded, and the mass of decomposing leaves and stalks remains wet for a long time after rain, and forms an ideal medium for the protection of the larvæ.

In mines the influence of moisture is equally well marked. The rise and progress of ankylostoma infection to the proportions of a serious epidemic in the Westphalian coal pits followed the introduction of watering the roads to prevent dust explosions. The following figures show how the prevalence of infection increased, watering being begun in the last six months of 1899:—

Year.	Number of collieries infected.	Number of cases reported.	Cases per 10,000 miners working.
1896	15	107	6·4
1897	31	113	6·2
1898	23	99	4·9
1899	26	94	4·4
1900	40	275	11·7
1901	63	1030	40·6
1902	66	1355	52·9

Active measures against the disease were commenced at the end of 1902, when a careful survey revealed about 18,000 infected men (9·1 per cent.). The gold mines in South Africa are almost quite dry, and though about half the native labourers working underground are already infected when they first come to work there is no evidence that infection tends to spread, and there have been few, if any, cases of the white miners acquiring the disease there. In Cornwall all the mines are more or less wet, but those which have a considerable proportion of dry roads and galleries are among the less heavily infected. Many coal pits in this country are too dry for the development of the larvæ. The recognition of the importance of coal-dust in the causation and propagation of underground explosions may, however, lead to the introduction of water sprinkling, with the result that in this respect conditions may become favourable. The alternative plan of having "dustless zones" on the roads is much to be preferred from the present standpoint.

3. *Temperature.*—The effect of cold is not altogether certain. My own experience is that the eggs die if kept for a few days near freezing temperature, and Stiles and Bruns[15] obtained the same result. Bruns also found that freezing kills the larvæ in an hour or two. Oliver,[16] on the other hand, finds that infected fæces may be frozen and the eggs still remain capable of hatching, and that larvæ may be buried in snow for six days without necessarily losing their vitality. The lethal effects of high temperatures on eggs and larvæ are well shown in Bruns's experiments. (Next table.)

Fæces in nature can hardly become heated as high as 48° C. (118° F.) unless they are at the same time being dried. It may occasionally happen that so hot a place occurs underground with an atmosphere saturated with moisture; such would be of no practical importance since men could not work there.

Effect of Heat on Eggs.

Temperature.	Duration of heating in minutes.					
	1	2	3	5	10	15
47° Centigrade.	+	+	+	+	+	+
48° ,,	+	+	+	+	+	+
49° ,,	+	+	+	+	−	−
50° ,,	+	+	+	−	−	−
51° ,,	+	+	+	−	−	−
52° ,,	+	+	−	−	−	−
53° ,,	+	−	−	−	−	−
55° ,,	+	−	−	−	−	−
58° ,,	−	−	−	−	−	−
60° ,,	−	−	−	−	−	−

+ = Eggs subsequently developed into encapsuled larvæ.
− = No development.

With encapsuled larvæ Bruns obtained the following results:—

Temperature.		Temperature.	
48° Centigrade...	Alive after 30 min.	53° Centigrade...	Dead after 2 min.
49° ,, ... ,,	,,	54° ,, ... ,,	1 ,,
50° ,,	... Dead after 20 min.	55° ,, ... ,,	1 ,,
51° ,, ... ,,	5 ,,	56° ,, ... ,,	1 ,,
52° ,, ... ,,	3 ,,	60° ,, ... ,,	1 ,,

Experiments in which the eggs and larvæ are kept continually at the same temperature show, however, that a less degree of heat is distinctly detrimental. At 36°–38° C. (97°–100° F.) the eggs often die without hatching; a few larvæ generally hatch out in about 24 hours and as a rule rapidly die away, only a very few surviving to the infective stage. Encapsuled larvæ which have been reared at a lower temperature have, in my experience, always died in a few days at 37° C., though they will live under the same conditions at room temperature for more than a year. The further development which they undergo when they gain entrance to the human body must be associated with a change in their temperature relations. Conditions probably seldom occur in nature which would make these facts of great practical importance. If fæces are dried the eggs and larvæ are killed in any case; if they remain moist their temperature will be reduced by evaporation if the air is not too humid. There is no inhabited part of the world where a temperature approaching 98° F. prevails for any length of time associated with a high relative humidity; such a combination would hardly be compatible with human life.[17] In mines restricted areas of the workings may be as hot and wet, but this is very uncommon. In Levant Mine in Cornwall some of the deeper galleries have a temperature of 93° F. with saturated air. At Schamrock Mine, in Westphalia, Meyer found that 15 per cent. of men working at about 20° C. (68° F.) were infected; 56 per cent. between 20° and 25° C. (68°–77° F.) and only 28 per cent. between 25° and 29° C. (77°–84° F.); but it is difficult to be certain that all the other circumstances were identical.

At the lower end of the scale the development of ankylostoma is also definitely limited by temperature. I have twice succeeded in hatching eggs and growing the larvæ to the encapsuled stage in an incubator in which the temperature was generally 15·9° C. (60·6° F.) and never exceeded 17° C. (62·5° F.), but such experiments do not always succeed either as regards hatching of eggs or development of larvæ. The lowest point at which really free and full development of the majority of eggs is to be expected is placed by Bruns at 20° C. (68° F.), and this is in accordance with my own experience. The encapsuled larvæ live very well at 15° C.

The widest possible range of temperature is therefore 15° C. (59° F.) to 38° C. (100° F.), but the range which is suitable for the great majority of eggs to hatch and larvæ to develop and continue to live when they have reached the encapsuled stage is restricted to the interval between about 20° C. (68° F.) and about 32° C. (90° F.).

As might be expected, temperature has a marked influence on the rate of development. At 35° C. (95° F.) free larvæ

[14] Zeitschrift für Biologie, vol. xlii., 1901, p. 55.
[15] Klinisches Jahrbuch, vol. xii., 1904.
[16] THE LANCET, Feb. 5th, 1910, p. 357.
[17] Journal of Hygiene, vol. v., 1905, p. 494; Journal of Pathology, vol. xiii., 1909, p. 62.

may appear in 24 hours and encapsuled larvæ in four days; at 16° C. (61° F.) the eggs take three to seven days to hatch and encapsuled larvæ may not be present for a fortnight. Taking all the circumstances into consideration we should suppose that the optimum temperature for the saprophytic phase of ankylostoma is somewhere about 27° C. (80° F.).

These experimental observations are fully in accordance with the observed epidemiological facts. The annual isotherms of 16° C. (61° F.) mark fairly accurately the limits of the distribution of infection of an epidemic degree about the world. Thus the disease is prevalent in the Southern but not in Northern United States, in Spain and Italy but not in France or Germany, in Queensland but not in Victoria. For obvious reasons the correspondence cannot be expected to be very exact, but we should expect that infection might be extensive anywhere where the mean annual temperature was over 60° F., while in cooler climates nothing beyond sporadic cases would occur. The following table shows the mean monthly and annual temperatures for a number of places in which infection does and does not occur. Thus the West Indies (represented by Trinidad), Assam (Calcutta), and the Southern States (Georgia) are all notorious foci; in Queensland (Brisbane) there is widespread infection, and a considerable amount of ankylostomiasis occurs in Italy[18] (Naples). In Victoria (Melbourne), on the other hand, the disease is not known, nor does it occur in the Northern States (Chicago), nor among the general population in France, Germany, or England.

Mean Monthly Temperatures (°F.).

—	Infected.					Not infected.						
	Trinidad.	Calcutta.	Brisbane.	Georgia, U.S.A.	Naples.	Melbourne.	Scilly Isles.	London.	Paris.	Chicago.	Berlin.	Aberdeen.
January	76	65	77	44	47	67	46	38	36	23	31	38
February	75	70	76	47	49	67	46	40	38	25	32	38
March	77	79	74	56	51	65	46	42	43	35	37	40
April	79	85	70	63	57	60	49	48	50	46	46	44
May	79	85	64	72	64	54	52	54	55	57	55	48
June	79	84	60	78	71	50	57	60	62	66	62	54
July	78	83	58	80	76	48	61	63	65	72	65	57
August	78	82	60	79	76	51	61	62	64	71	63	56
September ...	79	82	65	75	71	54	59	58	58	64	57	53
October	80	80	70	64	63	57	54	50	50	53	48	47
November ...	80	72	73	54	54	61	50	43	42	39	38	42
December... ...	77	65	76	47	49	65	47	39	37	29	33	38
Annual	78	78	69	63	61	58	52	50	50	48	47	46

It is pretty clear, then, that the disease does not gain a foothold under circumstances of temperature which experiment has shown to be not incompatible with the development of infective larvæ from the egg. Thus in this country it appears from the Greenwich Records for the 50 years 1841–1890, that the mean daily temperature is, on the average, over 60° F. on 71 days in each year, the mean maximum over 60° F. on 162 days, and over 70° F. on 85 days; the temperature exceeds 70° F. on 85 days, 80° F. on 14 days, and 90° F. on one day. In July, 1859, the thermometer rose above 80° F. on 21 days, and in July, 1868, on 20 days. As a matter of fact, if one leaves infected fæces in the open air in London in the summer one may after a time find encapsuled larvæ in them, though not in all samples. Oliver has observed the same thing in Newcastle. One would not expect to find ankylostoma rampant in this country owing to the effective control of fæcal contamination, but experience shows definitely that infection equally fails to spread in uncivilised countries of like climate. But such spread is not impossible. A certain number of cases have been known for many years to arise in the brickmakers[19] in the Cologne district, and there is at least one case where infection was acquired in New York by a boy who played in his father's brickyard in which were workmen who had brought the worm from elsewhere.[20] There does not seem to be any known infection in the neighbourhood of Chicago, although the summer there is very hot, and during the two months in which the mean monthly temperature is over 70° F. eggs would readily hatch and quickly develop into infective larvæ.

The only localities in North-Western Europe in which ankylostoma can thrive and make any headway are the underground workings of mines. Most mines are warm, and many hot, from a variety of causes. As pointed out by Haldane,[21] these high underground temperatures are due, in the first place, to the natural temperature of the earth, which increases with the depth from the surface by about 1° F. for every 60 ft. Thus the mean annual temperature on the surface in Cornwall is about 50° F., and the natural temperature of the rock at 1800 ft. is about 80°, and at the greatest depth at present reached in Dolcoath mine (500 fathoms = 3000 ft.) about 100°. As far as this source of heat is concerned the mines will go on getting hotter as they get deeper. A certain amount of heat is also produced by the men, animals, lights, and explosives underground, and the incoming air is warmed by compression as it comes down the downcast shaft. The most important source of the generation of heat underground is, however, the oxidation of the minerals as they are exposed to the air. There are good reasons for thinking that the chief process of this kind going on, both in coal and metalliferous mines, is the oxidation of iron pyrites. According to some, heat is also produced by the shearing and straining of the strata when they are disturbed and are capable, as in coal-pits, of a certain range of movement, but it is doubtful whether this possible source of heat is of any quantitative importance. On the other hand, the temperatures which would in this way be reached are actually diminished to a greater or less degree by the cooling effect of the ventilating current of air which operates partly by taking up heat from the rock and, which is more important, by evaporating water out of the workings. Hence the actual temperature of any place underground will, depth and other conditions being equal, depend largely on the volume of ventilation; the downcast shafts and intake roads will be cooler than the upcast shafts and return roads, and dead ends without any through ventilation will be especially hot. A mine may also be cooled a good deal by the percolation through the strata of surface water, which is ultimately pumped out from the bottom.

In considering the effect of underground temperatures on the propagation of ankylostoma, it is important to note that there is relatively little variation at different seasons of the year, except near the intake of fresh air.

In Cornish mines considerable areas of the underground workings are over 70° F. In Dolcoath mine, for instance, a good deal of the deeper galleries have a temperature between 75 and 80°, and in places where fresh rock is being opened up by tunnelling temperatures of 98° or thereabouts are not uncommon by reason of the high natural temperature of the virgin rock and the absence of any effective ventilation. In Levant mine, where the ventilation is very imperfect, the temperature where much of the work is now being done is over 80°, and in some places as high as 90°. In other mines, however, which are not so deep and better ventilated temperatures are much lower (60–70°). The temperature of coalpits in this country varies in the same way, and it is impossible to make any general statement on the point, if only because the temperature varies so much in different parts of the same pit. There is, however, no doubt that as far as temperature alone is concerned there are many places in British coal-pits where ankylostoma would get on very well. In their exhaustive report[22] on the ventilation of coal-mines Professor John Cadman and Mr. E. B. Whalley incidentally give a number of data relating to 43 collieries which were not selected as being particularly hot. In 30 temperatures of over 70° F. were observed, in 12 of which the thermometer recorded over 80°, and in 2 more than 90°. In another series of 20 collieries in North Staffordshire, temperatures over 70° were observed in 15, and over 80° in 5. In Westphalia in about two-thirds of the collieries the temperature is less than 70°.

[18] Of 1200 patients in the hospital at Pavia in 1909 Marti found 76 cases of ankylostomiasis.

[19] The temperature in such places may well be a good deal above the screen records in the neighbourhood.

[20] W. R. Stone: Medical News, vol. lxxxii., 1903, p. 680. A second case is recorded by H. Brooks, Medical Record, vol. lxxvii., 1910, p. 191.

[21] Report on the Health of Cornish Miners, Parliamentary Paper, Cd. 2091 (1904), pp. 93, ff.

[22] Royal Commission on Mines, Cd. 4551, 1909.

In the case of mines there is particularly clear evidence that ankylostomiasis does not become prevalent if the temperature is below about 70° F., though we know that experimentally infective larvæ may develop at 61°. Tenholt's figures for the Westphalian colliery district in 1901 show this very well.

Temperature about working face.	Number of collieries.	Number of men employed underground.	Number of cases of ankylostomiasis.	Cases per 1000 men.
Below 63° F. (17° C.) ...	67	36,033	20	0·6
63°–68° F. (17°–20° C.) ...	84	68,604	25	0·4
68°–72° F. (20°–22° C.) ...	45	43,710	118	2·5
72°–77° F. (22°–25° C.) ...	33	39,836	466	11·7
Over 77° F. (25° C.) ...	12	9,853	392	39·8
Total	241	198,036	1021	5·1

He further points out that four-fifths of the cases occurred among the hewers, who only constituted one-half of all underground workers, a fact no doubt attributable to the higher temperatures at the working face. The same local distribution was seen in Dolcoath mine. Common opinion among the men associated skin eruptions and breathlessness especially with the main upcast shaft ("New Sump Shaft"); their boils and blains were, indeed, known among the men as "New Sump bunches." This shaft is particularly warm, and, the air at the bottom being saturated with moisture and being decompressed as it ascends, a good deal of moisture is deposited; it is also the main pumping shaft, which makes it all very wet, and was apparently a favourite resort for purposes which, with some imagination, may be described as "sanitary."

The next general group of circumstances which may determine the prevalence of ankylostoma infection by influencing the development of larvæ includes poisons, disinfectants, and the like. The stout outer sheath of the encapsuled larvæ gives them a considerable power of resisting the action of poisons. Thus Lambinet[23] found that 25 per cent. sulphuric acid took more than half an hour to kill them, while 2 per cent. corrosive sublimate did not kill in six hours. In the same way, but to a less degree, the eggs appear resistant. But this is only because they are protected by a shell.[24] Both eggs and encapsuled larvæ are killed by 0·1 per cent. sublimate, 0·5 per cent. lysol, or any other poison if sufficient time is allowed for the solution to really reach the animal. Recently hatched larvæ are unprotected and are killed very soon. Mixing infected fæces, therefore, with some poisonous substance which will kill neither the eggs nor encapsuled larvæ may prevent the eggs reaching the infective stage by killing off the young larvæ as they hatch out.

That these questions may be of importance in nature is shown by the history of Levant mine in Cornwall. The shafts are on the cliff and most of the workings under the sea; they are badly ventilated, wet, very hot, and were at the time of inquiry extensively soiled with fæces. It was also ascertained that a number of men who were known to be infected had from time to time worked there. We visited the mine, therefore, expecting to find that under these very favourable conditions the disease had become rampant. But no trace of infection could be discovered. Subsequent investigation showed that this immunity was due to the nature of the water in the mine. Some of this comes in on the land side but most of it filters in from the sea, and the water in most of the mine contains between 2 and 3 per cent. of sodium chloride.[25] Experiments in the laboratory proved that this degree of salinity prevents the development of encapsuled larvæ from the eggs, chiefly by its action on the unprotected phase of young larvæ. Encapsuled larvæ placed in salt solutions of different strengths gave the following results at a temperature of 20° C. (68° F.):—

—	3 hours.	18 hours.	2 days.	9 days.	18 days.
0·8% NaCl	Lively.	Lively.	Lively.	Lively.	Lively.
2% ,,	,,	Some dead, some lively.	A few lively.	A few lively.	A few lively.
4% ,,	Motionless.	None moving.	Dead.	—	—
6% ,,	,,	,,	,,	—	—
10% ,,	,,	,,	,,	—	—

Similar experiments were made with eggs, fresh infected fæces being placed on an island of wet filter paper surrounded by a moat of salt solution at 20° C.

—	After 7 days.	After 12 days.
Tap water.	Lively large larvæ.	Very hearty encapsuled larvæ.
0·8 per cent. NaCl.	Ditto.	Ditto.
2·0 ,, ,,	A few dead first day* larvæ.	Many first day and a few second day larvæ; all dead.
4·0 ,, ,,	Eggs ready to hatch; no larvæ.	No free larvæ; eggs dead.
6·0 ,, ,,	A few embryos in eggs; mostly morulæ.	No larvæ; eggs dead.
Water from Levant mine containing 2·42 per cent. NaCl.	A few first day larvæ; not all dead.	A few dead larvæ; eggs dead.

* That is the stage to which a larva gets one day after hatching at about 35° C. Dead eggs are recognised by the disintegration of their contents.

These laboratory facts are confirmed by the experiments of Bruns and of Calmette and Breton. Epidemiologically it was observed by Schillinger (1885) in Hungary and by Blanchard in Galicia (1885) that the men in the salt mines were not ill and anæmic as they were elsewhere, and Manouvriez[26] has pointed out how the irregular distribution of infection among the coal mines in the Anzin district in the north of France can be explained by the indemnity of those in which the water is salt (1·2 to 4 per cent. NaCl). Monti[27] has also shown that while the disease is causing fearful havoc in most mines in Italy certain workings are quite immune and that the water in these contains 1·85, 2·7, 3·5, 5·6, and even 7·4 per cent. of salt. Chiadini and others have recorded similar observations. Professor Cadman has recorded[28] one coalpit in the North of England where the water contained 13 per cent. salt, but saline waters are exceptional in this country. Other poisons may be present in mine water. In the Transvaal G. A. Turner[29] notes that the water may be acid from the oxidation of pyrites to a degree equivalent to 0·79 per cent. H_2SO_4, and A. May[30] has shown that, while development proceeds normally with 0·05 per cent. H_2SO_4, 0·25 per cent. kills the eggs, while with 0·1 per cent. the eggs hatch, but the young larvæ are soon killed. Slightly acid water is common in mines, but I do not know whether such a degree as this is at all frequent. Belger[31] found iron sulphate very effective as a disinfectant.

INFLUENCE OF FÆCAL CONTAMINATION.

The prevalence of ankylostoma is, under natural circumstances, determined by the physical agents which condition the development of infective larvæ from the egg. But it is important to note that the course of nature may be interfered with in a way which, in this immediate connexion, has been singularly effective. Modern methods of sewage disposal are so obviously contrary to the general scheme which nature has devised for the circulation of nitrogen among living organisms that it hardly needed the advocacy of Dr. Poore to produce an abstract conviction that fæces should rightly return to us in the form of

[23] Bulletin de l'Académie Royale de Médecine de Belgique, vol. xv., 1901, p. 397.

[24] Ascaris eggs continue to develop in strong formalin (S. Hastings, Archives of the Middlesex Hospital, vol. xix., 1910, p. 233).

[25] Pure Atlantic sea water contains 3·4 per cent. The water in other Cornish mines in which the infection was prevalent contained at most 0·02 per cent. NaCl.

[26] Mines de Houille rendues Réfractaires à l'Ankylostome par des Eaux Salées de Filtration, par A. Manouvriez, Valenciennes, 1905.

[27] Second International Congress on Industrial Diseases, Brussels, 1910.

[28] Report on Ventilation of Coal Mines, p. 13 (Cd. 4551), 1909.

[29] Transvaal Medical Journal, vol. iv. 1908, p. 34.

[30] Ibid., p. 40.

[31] THE LANCET, Feb. 5th, 1910, p. 359.

cabbages. Sanitary science in this country has fortunately been directed by notions of practical convenience rather than by conceptions of fundamental biological truth, and if the care with which fæces are carried away from us and broken up has somewhat diminished the return of vegetables, it has at any rate had a far greater effect in diminishing the return of parasites. If, indeed, all contact between man and his excretions could be prevented all the world over as thoroughly as is done in this country at the present day, it would be no matter of surprise if before very long ankylostoma, ascaris, and trichocephalus became as extinct as the dodo—a convincing proof of the biological iniquity of our arrangements. The prevalence of these parasites in man is probably the best test we have of the efficacy of the disposal of fæces in any place. The chief drawback to the test is that the duration of life of the adult worm in man is indefinite and may be considerable, so that evidence is obtained of the cumulative effect of conditions which have prevailed during the preceding few years rather than in the immediate past. I have already referred to the fact that in an examination of the stools of 500 in-patients in Guy's Hospital taken at random French and I found trichocephalus dispar [32] in 39 cases, or 8 per cent., and in the age-period 5 to 40 as many as 33 out of 282, or 12 per cent., were infected. No other worms were found in unselected cases. Post-mortem experience shows that ascaris is not now found in more than one body in about 300 or 400 in Guy's Hospital. Forty years ago Cobbold recorded trichocephalus in 70 per cent. at Greenwich and in 90 per cent. in Dublin,[33] and ascaris was evidently a common-place occurrence. Among recent data relating to the prevalence of intestinal worms among reasonably civilised people we may note those of Stiles, Garrison, Ransome, and Stevenson,[34] who in 3457 persons in two asylums for the insane and in an orphanage in the United States found trichocephalus in 7·7 per cent., ascaris in only 0·5 per cent. Among 200 consecutive children between 2 and 12 years in the United States Schloss [35] found 11 per cent. with trichocephalus and 2 per cent. with ascaris. Chantemesse and Rodriguez [36] (1908) found trichocephalus eggs in the stools of 91 out of 134 (67 per cent.) of patients suffering from typhoid and in 45 out of 62 (72 per cent.) of other hospital patients. In 1891 Drivon [37] found trichocephalus in 76 per cent. of hospital patients at Lyons. The remarkable thing about these figures seems to be that infections are so numerous. In people of less complicated habits these nematodes may be extraordinarily prevalent. Thus in fæces found by the roadside near Lausanne Galli Valerio [38] found ascaris in 48 per cent. and trichocephalus in 68 per cent., which shows clearly how common infection may be in temperate climates among those who have no use for sanitary conveniences. The following table summarises some modern results of systematic examination in tropical countries.

	Number examined.	Percentage infected with—		
		Ankylostoma.	Ascaris.	Trichocephalus.
Djerid oasis: Tunis [39]	107	21	68	12
St. Vincent, W.I. [40]	414	82	56	53
China [41]	—	—	92	—
Filipino prisoners [42]	4106	52	26	59
Natal: Indian coolies [43]	709	44	83	19
Panama [44]	232	49	8	17
Transvaal: natives in mines [45]	692	48	20	0·3 (?)
India: gaol prisoners [46]	—	72	36	12
French Guiana: prisoners [47] ...	639	72	2	6
Tonkin [48]	1000	51	71	78

[32] There was one case of ascaris infection, but the lad had been admitted to have the worms expelled, so that it was not an unselected case.

[33] In 1835 (*circa*).

[34] Bulletin No. 28, Hygiene Laboratory, U.S. Public Health and Marine Hospital Service, Washington, 1906, Literature.

[35] American Journal of the Medical Sciences, vol. cxxxix., 1910, p. 675.

[36] Bulletin de l'Académie de Médecine, vol. lix., 1908, p. 407.

[37] Journal de Physiologie et de Pathologie Générales, vol. x., 1908, p. 127.

[38] Centralblatt für Bakteriologie, Orig., vol. xliv., 1907, p. 531.

[39] Gobert and Catouillard: Bulletin de la Société de Pathologie Exotique, vol. i., 1908, p. 229.

Such conditions are, however, not confined to the tropics nor to other countries than our own. In Cornish miners these worms are very common. The majority of examinations of stools there were made for the diagnosis of ankylostoma infection; in heavily infested cases these are found in the first few microscopic fields examined and the specimens were, as a rule, not searched further. Even from such cursory examinations one formed the impression that trichocephalus was very common and ascaris pretty frequent. In mines, however, which were either altogether free from ankylostoma or only slightly infected the specimens were searched more thoroughly and in them we found trichocephalus in 79 per cent. and ascaris in 25 per cent. In one series of 23 samples 8 were free from worms, 4 had trichocephalus only, 1 had ascaris only, 6 had trichocephalus and ascaris, 2 had trichocephalus and ankylostoma, and 2 had trichocephalus, ascaris, and ankylostoma. In all, 15 people had 27 worm infections between them, not counting oxyuris.[49] The prevalence of these worms in the Cornish miners [50] may to some extent be associated with the tropical temperatures which obtain underground; the eggs of both ascaris and trichocephalus are not infective when swallowed unless they contain a developed larva, and this development is accelerated by warmth. Their prevalence in the ordinary population of England and North-Western Europe in times past, and under suitable circumstances at the present day, shows, however, that no great warmth is necessary, and there can be no hesitation in ascribing their abundance in Cornish miners to the filthy conditions which prevailed underground. Nine years ago there was very inadequate privy accommodation at the mines on the surface, and underground no provision was made at all. The men worked in three eight-hour shifts, and, apart from the cases of necessity which must arise under these circumstances, they had developed a regular habit of defæcating underground. The sanitary accommodation at their homes was excellent, though often separated from the house, and I suppose that the warmth and quiet rendered the underground workings more attractive, combined with the fact that once the men had gone down there might be no need for immediate hurry—an obvious consideration for the shifts due underground at 10 P.M. and 6 A.M. For the most part use was made of blind ends and odd corners, but the whole of the mines were more or less offensive, and fæces were trodden about everywhere. Particularly significant perhaps was the fact that a great deal of travelling up and down is effected by climbing ladders, the cage which accommodates men ("gig") being substituted for that used for hauling mineral ("skip") only at the times of changing shift. In this climbing the hands and arms become covered with mud and filth which has been carried on to the ladders on the men's boots. Some of these ladders are in the same shaft with the cage and pumping apparatus. The latter requires constant attention, and for examination and repair the men climb about on the ladders and cross-timbers. These beams were, we were informed, a favourite resort, which made the lot of the repairing gang particularly beastly.

These horrid conditions have now been much improved. In 1904 sanitary appliances were introduced into Dolcoath mine in the form of loose pails which can easily be brought to surface, emptied, and cleaned. After some turbulence on the part of the less responsible workmen their use became habitual, and it is now the exception to find fæces loose in the mine. In 1905 the provision of such conveniences was made compulsory by the Home Secretary.

In coal-mines the fæcal contamination is, for various reasons, much less serious. In some places in South Wales

[40] C. W. Branch: Journal of Tropical Medicine, vol. viii., 1905, p. 261.

[41] J. J. Matignon: Bulletin de l'Académie de Médecine, vol. xiv., 1901, p. 366. Only 25 per cent. of Europeans infected.

[42] Garrison: Philippine Journal of Science, vol. iii., 1908, p. 191.

[43] B. Nicol: Transvaal Medical Journal, vol. v., 1910, p. 228.

[44] G. H. Whipple: American Journal of the Medical Sciences, vol. cxxxviii., 1909, p. 40.

[45] G. A. Turner: Transvaal Medical Journal, vol. iv., 1908, p. 34.

[46] C. F. Fearnside: Brit. Med. Jour., vol. ii., 1900, p. 541.

[47] Brimont: Bulletin de la Société de Pathologie Exotique, vol. ii., 1909, p. 423.

[48] Mathis and Leger: Ibid., p. 488.

[49] Oxyuris is common, but neither eggs nor worms are often found in the examination of ordinary samples of fæces. After anthelmintics the worms are easily seen.

[50] Bréhon (Archives de Parasitologie, vol. ix., 1905, p. 540) found trichocephalus in 50 per cent. and ascaris in 10 per cent. of 1708 miners in the Pas de Calais; ankylostoma two cases only.

there is, as I am informed by Professor Cadman, a strong local feeling on the subject which has a most beneficial effect. The actual stink and nuisance is much diminished by the deodorising effect of the coal, and in searching for fæcal deposits in coal-pits one has to rely mostly on sight. In any case the bulk of fæces subsisting in exposed situations in a coal-pit at any moment will always be less than in a metalliferous mine owing to the relatively transitory nature of the exposed surface. At the working face the coal is excavated and removed very much more quickly in tons per man than is the granite or other hard rock which forms the matrix of most metalliferous deposits. As the coal is taken out, the roof is allowed to fall in and fill up the gap, and the men seem to make it a habit to defæcate in the "goaf" or "gob" in which the waste débris is stowed, and which will very shortly be shut off for ever from any further contact with human beings. Even the main roads which lead from the shafts to the working face are constantly being renewed; the floor tends to rise and the roof to fall, so that the surface has to be frequently cleaned up. In the hard rock of metalliferous mines, on the other hand, progress is much slower at the site of actual excavation, and the roads are practically permanent.[51] Hence fæces tend to accumulate as they do in communities of fixed abode; coal-miners enjoy some of the advantages of a nomadic people.

INSANITARY CONDITIONS AND SPREAD OF ANKYLOSTOMA INFECTION.

One of the most striking examples of the influence of neglect of sanitary precautions on the spread of ankylostoma infection is afforded by the prevalence of the disease in the Southern United States. It is clear from the comprehensive observations of Stiles and many others[52] that ankylostomiasis is one of the most potent causes of chronic ill-health and inefficiency among the agricultural population in these parts. In the large cities it is limited to imported cases and those infected away from home. What is surprising to us is that the farming class should be so grossly filthy in their habits. Dock and Bass[53] state that in the country there are few privies, and such as there are are only used for shelter and convenience. The safe disposal of fæces is not considered and, owing to defective construction, pigs and fowls can root and scratch about among them and so scatter eggs around. They show by direct experiment that ankylostoma eggs can be fed to chickens and larvæ readily hatched from the eggs when they are subsequently passed by the fowls. In this way infection might be disseminated very widely.[54] During wet weather fæces are liable to be washed out of the primitive shelters, which are, if possible, placed on a slope to keep them as dry as may be. About three-quarters of the rural population have not got a privy even of this inefficient sort. Any more or less retired place near the house is used by the adults, while of the rest of the family they say, "It is often possible to determine the number of children in a family by the number of piles of fæces in the backyard. ..... In small towns, where many country people come to market, there is often some near-by thicket, or gully, or barnyard to which the country people go when they get 'in a tight,' in preference to privies, to which they are unaccustomed even if they are available. The country people are more or less infected, and they thus convert these resorts into veritable hotbeds of hookworm larvæ. We remember such a 'gully' near a country town, and with our present knowledge we now see ample explanation of the ground itch and anæmia among many of the town boys, who often went barefoot in warm weather. The most favoured parts of the 'gully' were so much used for this purpose that there often seemed to be no more room. Many of the country schools are not provided with any sort of a privy." A lurid picture of the habits of a white population which is said to represent the purest breed of English that still survives. In Georgia, Wells[55] found about 24 per cent. of the total white population outside towns infected; of 280 school children 137, or 49 per cent., had the worm. Among university students from the Southern States 37, 42, and 37 per cent. have been found infected in different inquiries; among army recruits 60 and 88 per cent.; half the white population of Mississippi are infected, and in the cotton-mills 13 per cent. are ill enough to hinder their work.

CONDITIONS FAVOURING INFECTION BY THE SKIN.

Besides the physical circumstances which prevail and the efficacy with which the disposal of fæces is carried out, a third group of circumstances which may materially influence the prevalence of ankylostoma infection is found in the degree to which the human skin is immediately accessible to the larvæ. Wearing boots is in many circumstances obviously a pretty complete protection, and to this no doubt Europeans owe their almost complete immunity when living in places in the tropics where the barefooted natives are infected to a man. Infection on the feet is doubtless the commonest mode of attack, and it is on the feet that "ground itch" and "mazamorra" characteristically occur. Boots are, of course, no great protection when the nature of the occupation brings the hands and arms into intimate contact with infected earth. Hence the special prevalence of infection among agriculturists in the tropics, and among brickmakers and miners in North-Western Europe. Cornish miners wear boots which are often leaky, thin canvas trousers, and some sort of vest or shirt, together with a hard hat. In the hotter places they usually work stripped to the waist. "Bunches" are somewhat rare on the feet, occurring most commonly on the arms and legs. It is obvious from looking at the men that they are liable to be smeared with mud all over their bodies while doing their work in the cramped quarters which they have underground. Hence one is not surprised at the occurrence of the skin lesions in any part. "Sat down on muddy stone last Thursday, and has bunches on left buttock which came out the same night," is a representative note.

Such are the conditions which determine the prevalence of ankylostoma infection. Three are of outstanding importance—moisture, temperature, and fæcal contamination of the soil, and to ensure the existence of the parasite in any place all three must be simultaneously favourable. In the tropics this coincidence is commonly found. In mines in North-Western Europe, on the other hand, infection is often rendered impossible because one of these three conditions is unfavourable. Fæcal contamination is, or at any rate has been, everywhere pretty extensive, and most mines of any size are in parts either hot enough *or* wet enough. But relatively few underground works are at the same time and place hot enough *and* wet enough to give the parasite a reasonably good opportunity. If conditions are not unfavourable, the intensity of prevalence, as measured by the proportion of persons exposed who are infected and the proportion of those who have a large enough infection to make them ill, will vary as the product, rather than as the sum, of the degree to which moisture, temperature, and fæcal contamination are coincidently suitable for the development of the increasing number of eggs which the soil receives as infection becomes more widespread and more intense among the human population. Thus, one may have every grade of prevalence, from the scattered cases which, as Iberer[56] has shown, occur among the general population in the south of Hungary to the universal infection subsisting in Porto Rico, just as in Cornish mines, which are rather cool and dry, only 10 per cent. of underground workers are infected and none are sick, while at least 95 per cent. harbour the worm in hot, wet workings and 5 per cent. are too ill to work.

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[51] Dolcoath mine, for example, has been working continuously since 1799.

[52] The bibliography of American literature on "Uncinariasis" during the last three or four years has assumed gigantic proportions.

[53] Hookworm Disease, by G. Dock and C. C. Bass, 1910.

[54] Possibly also by flies. Galli-Valerio, Centralblatt für Bakteriologie, Orig., vol. liv., 1910, p. 194.

[55] Journal of the American Medical Association, vol. liv., 1910, p. 1852.

[56] Münchener Medicinische Wochenschrift, June 9th, 1903.

BIRMINGHAM GENERAL DISPENSARY.—From the committee's report it appeared that the receipts for the year amounted to £11,004 8*s.*, and that after meeting all expenses there remained a balance in hand of £196 17*s.* 9*d.* The increase in subscriptions was £211 8*s.* and the expenditure showed a decrease of £604. The total number of patients admitted by ticket was 58,757, and the average cost of patients was 3*s.* 4·1*d.* During the year 3693 dental patients had been treated and emergency cases treated without tickets numbered 1760, bringing up the total number of patients to 64,210.

MYOSITIS OSSIFICANS TRAUMATICA.[1]

BY RICKMAN J. GODLEE, M.S., F.R.C.S. ENG.,
PRESIDENT OF THE SURGICAL SECTION OF THE ROYAL SOCIETY OF MEDICINE; SURGEON-IN-ORDINARY TO H.M. THE KING; SURGEON TO UNIVERSITY COLLEGE HOSPITAL.

MORE than three years ago, on Dec. 6th, 1907, I saw a youth, aged 18 years, who a month before, on Nov. 9th, had been kicked on the front of the thigh at football. He continued to play for three minutes though in bad pain. Swelling occurred the same day and bruising came out later. He kept his bed for one day, then was about for two days, after which he rested for ten days, whilst the limb was fomented and afterwards painted with tincture of iodine. He was then allowed to walk a little and massage was applied. When I saw him there was apparent a very large oval swelling on the front of the lower half of the thigh. It was symmetrical and very hard, except just above the patella, where it fluctuated, and there was only slight pain on movement. I told him to leave it alone, and he returned to Oxford, where he did ordinary walking. In February, 1908, he tried football three times, but had to give it upon account of pain and stiffness. Otherwise it was all right till Feb. 26th, when it suddenly became stiff and hard again, and when I saw him on Feb. 28th it was in appearance much as when I saw him in December, except that it was now hard all over. It was perhaps slightly smaller, but still measured 5 in. from above down, and reached to 1¾ in. above the patella. It was obviously fixed to the bone, and I then had a skiagram taken, which shows a large dark shadow corresponding to the tumour, which, it will be seen, is even larger behind than in front, and there is a still more defined shadow of laminæ of what appears to be bone on the front of the femur; for the most part these are parallel with the shaft, but tail off at the upper part into layers which slant obliquely towards the bone.

On March 8th I saw the patient again with the late Mr. Clutton, who showed me three or four skiagrams of similar cases, and told me of two which had been operated upon (one by himself) in which the operation distinctly did harm. I was therefore fortified in my opinion to leave him alone, and after six months he had no further trouble.

I saw the patient again in March, 1910. The lump had almost gone. But another skiagram shows that there was then a distinct flake of bone on the front of the femur fading off above into the surface of the shaft, but ending below in a sharp spicule. He now pays no further attention to the thing at all.

One object of bringing this case before the section is to point out that a very large swelling may without treatment diminish so much in size as almost to disappear and cause no further trouble or inconvenience. It should be remembered that the shadow in the earlier skiagram does not necessarily show the amount of the bony deposit at that time, as it would probably be, like early callus, transparent to the X rays. This being the case, and the experience at all events of some surgeons having been that removal has actually done harm, I would urge the advisability of leaving these swellings alone until ample time has been allowed, at least a year, for the absorption of what may be called provisional callus. Even after this time I think that removal would only be justified if the mass were causing mechanical inconvenience and pain. It must be remembered that the operation is inflicting another traumatism upon a part which for some reason has shown a special tendency to the development of bone, and it cannot therefore be surprising if renewed activity of the process should follow.

To support this proposition I have searched some of our museums for specimens of bone showing the results of such injuries, but I find that they are not numerous. By a curious coincidence, whilst I was being told that we have nothing of the sort in the Anatomical Museum at University College, the beadle brought in a fine example which he wished to exchange for a normal femur. It will be seen that it occupies a part of the bone from which both vastus externus and crureus arise. It is sharply outlined, suggesting that the periosteum had been stripped up over a limited area. Its surface is firmly granular and rough, contrasting with that of the vertically ribbed highly polished normal bone. It ends, like all the specimens, in a free point below.

In the Museum of the Royal College of Surgeons there are two femurs, No. 1911 and No. 1911, both Hunterian, showing similar plates of bone. In that of St. Thomas's Hospital is one in the crureus, and at St. Bartholomew's Hospital are three admirable specimens which, by the kindness of the authorities, I am permitted to show and of which I produce photographs. Two of these are much like my own specimen, but one is particularly interesting because it corresponds almost exactly with one removed by Mr. P. M. Heath, which is now in the Museum of the University College Hospital Medical School. This case was described by Mr. Heath in the Transactions of the Clinical Section of the Royal Society of Medicine.[2] It shows a large mass of bone, not smooth, like most of the others, but raised into deep, rounded, vertical ridges, looking, it must be owned, like a deposit in the muscular fibres of the vastus or the crureus. I suggest that this is only an earlier condition of that which the other specimens show, and that in time it would have been, in great part, absorbed and have left the smooth rounded swelling to which I have drawn attention. We have had a transverse section made of Mr. Heath's specimen, and of this I show a microscopical section. It will be seen that the mass of bone is hollow. On its surface there is muscular tissue undergoing hyaline degeneration, the interstitial tissue of which is increased, and amongst the layers of which is blood pigment. Between this hollow plate and the front of the bone is a thick mass of grey gelatinous material rather like myxomatous tissue containing vessels scattered about in which are a few isolated groups of atrophied muscular fibres.

Naturally these cases would not come under the eye of the pathologist, and in the dissecting-room would not be of much interest to the anatomist. It is therefore interesting that Professor G. Elliot Smith tells me he did not come across any examples amongst the large number of prehistoric bones he examined in Nubia, and that none were furnished by the great haul of bones from the East-End plague-pits which found their way to University College.

So far, I have only referred to injuries to the femur, but a large number of cases of a similar process occurring in the neighbourhood of the elbow have been described, some in connexion with fractures, and others with simple dislocations. I show skiagrams of the elbow of a boy of 6 who broke his humerus in 1903. It was re-fractured on account of stiffness seven weeks later, but soon was as stiff as ever. Six months after the accident there was a bridge of bone uniting the front of the humerus to the coronoid process and absolutely locking the joint. This would be called a deposit in the brachialis anticus. I restored the joint to a fair degree of utility by removing it; but a later skiagram shows a considerable amount of fresh bone deposit after my operation.

A most elaborate paper on the subject by Mr. Robert Jones[3] records 17 cases of his own and over 140 by Cahier and Binnie. At that time Jones concluded that operative treatment was essential. It is therefore interesting that he should now write to me under date Feb. 28th, 1911: "Since writing the article I have come upon cases where the deposits, instead of increasing have decreased, and I am not now at all convinced of the value of operation. The simplest-looking mass in the bend of the elbow is a very difficult problem to negotiate operatively, and I have on more than one occasion wished I had left the whole thing alone."

Still it must be allowed that, in some of the elbow cases with complete locking, operation appears to be essential, and also that in some of the early operations on cases in the thigh, even if they are not, as I think, necessary, no harm has resulted. Such, for example, was the result in Mr. Heath's case, and in one other to which I must refer, because a careful examination was made of the parts removed.

Sir Frederic Eve described a case[4] apparently very much like Mr. Heath's, in which the bone was removed 11 weeks after the injury with good result. A microscopical examination showed atrophy or degeneration or disappearance of the muscle in the neighbourhood. But it is not clear that any sign of muscle was found in the thin layer of soft tissue which intervened between the bony mass and the femur.

[1] A paper read before the Surgical Section of the Royal Society of Medicine on March 14th, 1911.

[2] Transactions of the Royal Society of Medicine, 1910, vol. iii., p. 149.
[3] Archives of the Roentgen Ray and Allied Phenomena, 1905, 1906.
[4] Transactions of the Clinical Society of London, vol. xxxii., p. 233.

The author agrees that injury to the periosteum is an essential part of the condition.

I come, then, lastly to the question of whether this condition should be called myositis and what is the evidence that it is due to inflammation of muscle. To me it seems more probable that the essential things are first an injury to the periosteum, and, secondly, an effusion of blood; and that the injury to muscle and the inclusion of muscular fibres in the callus are, so to speak, accidental, though it no doubt governs the shape and position of the new mass of bone. In other words, I think it is more analogous to what occurs when periosteum is stripped off in such operations as excision of the elbow, or in the cephalhæmatomata of infants, in which it is easy to demonstrate true bone at the margins of the clot, or to the formation of provisional callus in simple fractures. I know it is suggested that the process is the same as that which causes the "rider's bone" or the "exercise bone," but it appears to me to be a very different one. In these there is no evidence of injury to the periosteum unless it be suggested that they are to be compared with the cases described by Sir James Paget where necrosis occurred at the insertion of a strained muscle. The strongest argument for the myositis theory is afforded by some recorded cases where the new bone was not in actual contact with that which had received the injury.

If the essential factor, then, is injury to the periosteum it is surely a pity that the name which has been applied to this condition should confuse our ideas of myositis, and especially of myositis ossificans, about which it must be allowed our present notions are quite vague enough.

Wimpole-street, W.

ON TRAUMATIC MYOSITIS OSSIFICANS.[1]

BY G. H. MAKINS, C.B., F.R.C.S. ENG.,
SURGEON TO ST. THOMAS'S HOSPITAL.

IN a paper by Schultz dealing with the occurrence of traumatic myositis ossificans in the German army during a period extending over ten years the respectable number of 233 cases has been collated, showing that the affection is more frequent than is commonly supposed. I take it that the frequency depends upon the fact that soldiers are carefully examined for any defects in physical efficiency, while amongst the civil workers the minor degrees of such a condition as this are often overlooked. Amongst Schultz's cases only three are noted as affecting other muscles than the quadriceps extensor femoris and the brachialis anticus. The exceptions are two instances of ossification of the masseter following horse kicks and one of the pectoralis major due to a blow during bayonet exercise. In a paper by Ewald examples are quoted of ossification of the deltoid, triceps, biceps, adductor magnus, and subclavius following accidental injuries, also Horvath's remarkable case in which ossification of both iliaci followed forcible manipulation of a flexed and adducted hip-joint. The common history of all such cases is the reception of an injury, such as a kick or blow, rupture of the muscle from over-action, or in the case of the brachialis anticus laceration of the muscle accompanying a dislocation of the bones of the forearm backwards. The injury may be followed immediately by the development of a hæmatoma, the swelling consequent on which may persist until the more lasting hardening due to the ossification appears. More commonly a latent interval or a period of improvement is followed in from 10 to 21 days by the development of local pain and limitation in the movements of the neighbouring articulation. A hard resistant tumour is then discovered in the area of the affected muscle, which may persist permanently, for long periods, or become more or less completely absorbed with some rapidity. The cases are as follows:—

CASE 1.—A youth aged 19 years. Six weeks before admission, in July, 1905, the patient received a kick on the front of the left thigh while playing football. He had received the same injury on two previous occasions, but treatment with hot fomentations caused the swelling to disappear in two or three days. On this occasion there were bad bruising and considerable swelling of the knee which after a few days completely disappeared. Two weeks later the patient noted that the thigh had commenced to swell again and a "lump" formed which gave him considerable pain, especially on flexion of the knee. The swelling had not increased during the past two weeks, and the patient had been able to use his limb more freely. As a shop assistant he is on his feet most of the day. On admission an obvious swelling existed in the middle third of the front of the thigh; the superjacent skin was normal in appearance and temperature. The swelling was fusiform in outline; at its upper and lower ends the femur could be palpated at a deeper level. The inner margin of the swelling was somewhat sharply defined. There was no pain or tenderness on palpation, but flexion beyond half the normal range caused pain, while no movement was produced of the tumour. A skiagram showed a definite plate of bone somewhat to the outer side of the femur and unconnected with the bone. The patient was kept at rest for seven weeks, during which time the tumour somewhat diminished in size and became less defined in outline. He then returned to his work, and has since suffered no practical disability. A skiagram taken on Feb. 3rd, 1911, five years later, showed no trace of the previous ossification. The movements of the knee were normal, and no swelling could be detected on palpation. The patient continues to box and play football.

CASE 2.—A youth aged 19 years. Three months before admission, in July, 1905, the patient received a kick from a horse on the front of the right thigh. The kick was a severe one, necessitating rest in bed for a week. Swelling was noted on the day following the accident, and the patient did not consider that this had either materially increased or diminished since. There had been little pain, except on going upstairs; at times the limb felt as if "giving way under him." On admission to the hospital a swelling of fusiform outline and 5 in. in length was found over the front of the middle third of the femur. It was quite hard and immovable, apparently fixed to the anterior surface of the bone. The skin was somewhat stretched over it, the superficial veins were dilated, and a small pigmented area corresponding to the point actually kicked still existed. A skiagram showed the tumour to be composed of bone of about the same consistence as normal cancellous tissue. For about an inch at the central part no interval could be demonstrated between the tumour and the femur, but the two ends of the tumour were quite free from the bone. The arrangement of the laminæ suggested that the tumour consisted of an ossification in the substance of the quadriceps. On July 19th, 1905, Mr. H. H. Clutton exposed the tumour by a longitudinal incision on the front of the thigh and removed the greater part of it. The bony mass was surrounded by gelatinous layers suggesting bursal tissue. Some septa of similar tissue and what appeared to be muscle ran for some distance into the new bone. The periosteum was not exposed. Except for the development of a hæmatoma the wound healed normally and the patient left the hospital on the nineteenth day after the operation. A skiagram taken on Feb. 1st, 1911, shows a plate of bone about half an inch in thickness closely applied to the femur beneath the site of the upper part of the original ossific tumour. The patient has been doing his work as a railway porter for the past five years, suffering no disability except slight restriction in the amount of flexion possible at the knee. No tumour is detectable on palpation.

CASE 3.—A man aged 23 years. Seven weeks before he came under observation, while playing football the patient had an accident, another player falling over him and kicking his knee. A week later, while playing football again, an onlooker pointed out to him that he had "water on the knee." For the next six weeks he was kept at rest and treatment directed to the injury to his knee. At the end of seven weeks he came under my notice, when a hard fusiform tumour was present over the middle third of the femur. Flexion of the knee could only be carried out to about half the normal range, and attempts at further movement were painful. A skiagram showed a large mass of bone in the deep part of the quadriceps, no interval existing between it and the femur. It was well formed delicate bone in irregular lamellæ. The femur was normal. The patient was kept at entire rest and given small doses of potassium iodide for four weeks, at the end of which time the bony swelling had become less in extent, but somewhat denser. During the next three months the patient gradually resumed normal life and exercise, and at the end of the period was suffering no disability although some swelling was still palpable.

The chief interest in these cases lies in the first and second, since the patients were of the same age, they came under observation at the same time, and while one was treated by an active method, the other practically got well spontaneously. It is, however, to be remarked that the first case was of seven weeks' standing only, while the tumour in the second patient had been in existence three months. None the less, I am inclined to maintain the opinion that no active treatment should be adopted in the early stages of the condition, and I think that this view is supported by the observation here recorded in spite of the difference in the duration of the condition in the two patients.

I regret that I am unable to attempt to shed any new light on the pathology of traumatic myositis ossificans. I think we can only assume that patients the subjects of the condition belong to the "ossific diathesis" of Virchow—that is to say, in the words of Mr. Shattock in describing a traumatic osteoma, that "they possess an idiosyncrasy for producing bone under conditions which do not avail under normal circumstances." These patients must, in fact, be placed in the same category with those in whom large masses of callus are developed in connexion with fractures, even to the degree of such a case as the remarkable instance recorded by Battle and Shattock in which the callus assumed the form of an actual cancellous osteoma.

The frequency with which two muscles of the body, the quadriceps extensor femoris and the brachialis anticus, are affected seems to me to support the theory that the exciting

[1] A paper read before the Surgical Section of the Royal Society of Medicine on March 14th, 1911.

influence is to be referred to bone-forming cells detached from the periosteum. Both these muscles obtain a great part of their origin from plane surfaces of bone to which the attachment of the periosteum is not so firm as at the bony ridges or eminences which afford so great a proportion of muscular attachments, hence it seems probable that the tearing free of fibres of origin of these muscles may more readily give rise to breaches of the continuity of the periosteum, which, while in themselves insignificant, may yet suffice to set free bone-forming cells from the osteogenetic layer of the periosteum in a number capable of providing the necessary genetic stimulus for the ossific process. Such breaches of continuity of the periosteum may be very far short of a gross lesion such as accompanies a fracture and yet be sufficient for the purpose, while the subsequent apparent complete absence of continuity between the tumour and the bone is explained by the retraction of the separated fibres of muscle together with their minute attached portions of periosteum into the main mass of the muscle.

As to the common subsequent re-absorption of the bone, this appears to me to be a process in strict conformity with the re-absorption of superfluous masses of provisional callus in the case of fractures, the remodelling of bones to compensate for deformity due to curvatures, or the re-absorption of such cancellous osteomata as is described in the case of Battle and Shattock already referred to.

The structure of the bone is that of typical cancellous tissue except for the absence of true bone marrow, not differing in any way from that developed on the surface of the long bones in cases of osteo-periostitis. To illustrate this fact I exhibit a skiagram of a femur affected with diffuse osteo-periostitis of unknown origin, in which the ossification extends into the origin of the vastus externus, while the compact tissue beneath the periosteum has been extensively absorbed. A microscopical section of the bony tissue in this instance is identical in structure with the section obtained from the case of traumatic myositis ossificans, except in so far as the trabeculæ and intertrabecular spaces are more delicate in arrangement.

Significance has been attributed to the development of a hæmatoma in the early stage of the condition, but the presence of blood is probably only of importance in so far as it dissects up the intimate structure of the affected muscle and opens up the way and forms the basis for the connective tissue in which the subsequent ossification takes place. It has been suggested by Ewald in a recent paper that the escape of synovial fluid from the knee and elbow-joints respectively affords the stimulus for the ossific process. In support of this theory Ewald dwells upon the bursal character of the tissue surrounding the bony mass (mentioned in Case 2), which has been described by many observers, and also on the synovia-like fluid filling the cystic cavities which sometimes develop. It may be pointed out that similar tissue and fluid are observed in some cases of false joint following non-union of fractures where no rupture of a neighbouring synovial capsule exists.

We should be careful clinically to separate the condition of traumatic myositis ossificans from the ossifications accompanying the separation of small bony prominences, as in dislocations of the elbow, since these are much less extensive, usually confined to fibrous tissue, and in my experience more likely to be permanent. Again, traumatic myositis ossificans should be sharply distinguished from the so-called "rider's bones" which are really small permanent exostoses, and rather to be classed with the normal muscular apophyses which develop on bones at the points of attachment of powerful muscles as a definite response to the mechanical stimulus furnished by the pull of the muscles. In support of this view it may be pointed out that when the "rider's bone" attains large proportions, as in the ossification of the complete adductor magnus, the change is a permanent one. It does not appear to me to be correct to class the ossifications of muscle observed in various neuropathic diseases with traumatic myositis ossificans, since the former are permanent degenerations due to disturbances of nutrition, while the latter are rather to be regarded as connected with the normal process of repair.

Lastly, as to the general line of treatment to be adopted, a period of some weeks' complete rest should be maintained during the continuance of the active progress of ossification. When it is judged by clinical observation and X ray examination that progress has ceased or the process is retrogressive massage and exercise should follow. Operative treatment should only be considered when the process has manifestly come to a definite standstill, and the patient suffers from functional disability which there is a chance of relieving.

Upper Brook-street, W.

THE FORMATION OF BONE IN PERIOSTEUM SEPARATED BY INJURY.[1]

BY A. A. BOWLBY, C.M.G., F.R.C.S. ENG.,
SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

THE condition to which I wish to direct attention is well illustrated by the two following cases.

CASE 1.—A young man, aged 18 years, was thrown from his horse on April 20th of last year and injured his arm, the pain being felt on the flexor aspect just above the elbow-joint. As it was evident that he could not have struck this region, it appeared probable that the injury was caused by a muscular wrench when he fell on his outstretched hands. He was seen the next day by Dr. Brice Collyer of Croydon, who found that there was a good deal of swelling and pain, but the X rays confirmed the fact that there was no fracture. During the next fortnight the swelling rather increased and the patient was not able to use the arm, while both flexion and extension became more limited. On May 26th another radiogram showed that there was an irregular piece of bone in the region of the swelling, and on May 30th I saw the patient and found the following condition. Situated on the front of the humerus under the biceps tendon was an irregularly rounded swelling of the size of a hen's egg. It was very firm and was more or less fixed to the bone, but the muscle over it was free. It limited the movements of flexion and extension, and when the forearm was as nearly completely extended as possible it could be seen as a very definite swelling. An X ray picture showed an irregular formation of bone over an area of about 1¼ in. in diameter. The arm was placed on a splint and Scott's ointment was applied, with the result that in six weeks the swelling had almost disappeared. In three months' time no sign of it could be found and the movements of the arm were quite restored.

CASE 2.—A young lady, aged 21 years, fell while tobogganing on April 15th and injured her elbow. A surgeon found that she had sustained a dislocation of this joint and this was reduced under an anæsthetic, and the arm kept in a splint for one week and in a sling for a week more. It was then found that there was a swelling on the front of the humerus just above the elbow-joint, and this swelling continued to increase till I saw her six weeks after the accident. I found a swelling exactly like that described in Case 1 and, like it, of about the size of a hen's egg, situated beneath the muscles and attached to the bone. It caused aching pain and prevented free use of the arm. The X rays showed an irregular bony lump separated from the outline of the humerus by about an inch, while the shaft of the bone itself was normal and uninjured. Here, also, rest on a splint and a mercurial ointment resulted in the complete disappearance of the swelling within three months and the restoration of movements in this joint.

The formation of a considerable swelling as a result of the separation of periosteum by the muscles is not a common occurrence, although, as the result of direct blows, such as kicks on the shin, it is frequently seen. But I believe that there are really a great many cases in which pain and impairment of the use of a limb are caused by the dragging of the periosteum off the bone where large muscles are inserted into it, and by the hæmorrhage which results therefrom and from the formation of new bone. In most of these cases the swelling is slight and is often hardly noticed, but pain may persist for a long time unless the muscles are kept at rest. If there has been any old periosteitis which has left the membrane hypervascular and has loosened its

[1] A paper read before the Surgical Section of the Royal Society of Medicine on March 14th, 1911.

attachment, separation is more easily caused, and I have seen in one patient, who had previously had acute osteitis and necrosis of a small piece of the humerus, several attacks of pain and swelling of the bone brought on by any violent use of the muscles attached to the upper part of the affected bone. The patient was liable to these attacks for several years, and they caused the arm to swell to at least double its natural size, but they only occurred as a result of some considerable muscular strain, and slowly subsided when the arm was kept absolutely at rest.

In their less pronounced form I have seen cases of pain and tenderness with some swelling, which I have attributed to a separated periosteum, chiefly in the humerus and the femur, but the only cases where X ray pictures have been taken to confirm this diagnosis are the two I have detailed above. In one of them the swelling was so considerable that it had been diagnosed as a possible periosteal sarcoma.

Manchester-square, W.

A CASE OF POISONING BY TRAGOPOGON PRATENSE, OR GOAT'S BEARD.

BY FRED J. SMITH, M.D. LOND.

With Notes on the Chemistry by HUGH CANDY, B.SC., F.I.C.

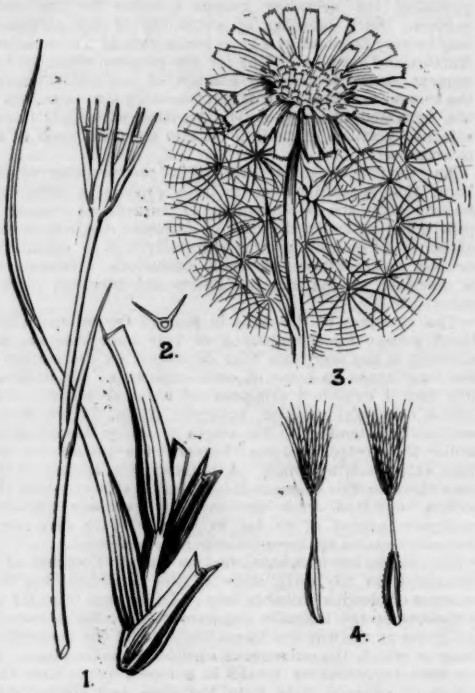
ON Monday, July 18th, 1910, the patient, a boy, aged 13 years, was admitted to the London Hospital in a semi-comatose state with the following history. On the previous Saturday afternoon, in company with some school fellows, he had been for a walk near Epping Forest and had partaken somewhat freely of what seem to be known locally as "gipsy nuts." He took a supply home with him and ate some more on Sunday. No ill-effects appear to have been caused either on the Saturday or during Sunday, for he went to bed on Sunday night apparently well, but was found on Monday morning semi-conscious in bed, looking very blue, and complaining of headache, but apparently there was no vomiting or other symptom of active irritant poisoning. (I believe that emetics were administered at home, and that they acted very successfully.) As he did not get better he was admitted to the hospital in the course of Monday afternoon, when I saw him at the request of Dr. R. Cecil Wall, under whose care he was admitted, and to whom I am indebted for permission to publish the case. When we saw the boy he was unconscious, cyanosed, with small inactive pupils, a small quick pulse, breathing very rapidly, with crepitations over both lungs. The temperature on admission was 101° F. Hot coffee and simple stimulants were administered, but in consideration of the long time that had elapsed since he had taken the deleterious material, the nature of which was quite unknown, and also fearing we might do more harm than good by very energetic treatment, we contented ourselves with one injection of strychnine (1/60 gr.) and atropine (1/100 gr.), the former as a general stimulant, and the latter in the hope that it might be anti-dotal, as the pupils were contracted. He passed several loose motions under him in bed, his respirations became of a Cheyne-Stokes type, his temperature gradually rose to 104°, and without showing any marked symptoms beyond those mentioned he died on Monday evening.

It was tolerably obvious that death was due to the "gipsy nuts." How many the boy had eaten is uncertain, but probably a good many, as he collected a pocketful after his feast when out for the walk, and of these he would seem to have eaten freely on Sunday. His mother brought some for us to examine. I only recognised them as the seeds of some composite plant and asked to be supplied with some other parts of it; these in a day or two were forthcoming when one, of course, at once saw that it was the common wild flower Tragopogon pratense, which can be found fairly abundantly about waste ground, rubbish heaps, &c.

The post-mortem examination was done on the next day. Its results were entirely negative, with the exception of a small patch of about the size of a penny of acute gastritis close to the œsophageal opening, and a few tiny hæmorrhages in the lungs, no doubt caused by respiratory distress and failure. As vomiting and purging had been rather severe I did not preserve any of the contents of the guts for analysis, though they were very carefully examined with the naked eye with negative results.

On turning to my Sowerby I find no mention of any poisonous property residing in the plant—in fact, it is there stated that the roots of this and its brother Tragopogon porrifolius are good to eat. As the plant is, however, so common I think the case ought to be published as a warning of the possible dangers of eating it.

As soon as I knew what plant it was that had caused the fatality I obtained some of the seeds for analysis by Mr. Hugh Candy, analyst to the hospital, whose report is appended.



1. The plant (much reduced). 2. Section of a leaf. 3. Flower and pappus (about hal f natural size). 4. The seeds "gipsy nuts" (about half natural size).

Notes on Examination of Seeds of Tragopogon Pratense for Presence of Alkaloids, by MR. CANDY.

Of the seeds 100 grammes were ground in a mill, and the crushed product was repeatedly extracted with alcohol in presence of tartaric acid; the alcoholic extract was filtered, and the clear filtrate had a fine green colour; this filtrate was evaporated on the water bath to a soft residue which was of a deep brown colour. This residue was dissolved in hot distilled water as far as possible and the solution was filtered. The aqueous filtrate was made up to 200 c.c. with distilled water and then divided into two equal portions, S_1 and S_2, which were examined differently as follows:—

S_1. 100 c.c. were purified by the usual process with lead acetate, and the final lead-free filtrate was tested for alkaloids with the usual reagents. A precipitate was only obtained with phospho-molybdic acid.

S_2. The other 100 c.c. were successively extracted with (1) petroleum ether, (2) benzene, and (3) chloroform, first in acid solution and afterwards in ammoniacal solution. The last alkaline liquid was finally extracted with (4) amyl alcohol. In this way seven extracts were obtained, which were separately evaporated, and the residues so obtained were individually tested for alkaloids *with negative results.* The residue of S_2 from which these extracts had been obtained still gave the precipitate with phospho-molybdic acid.

Therefore, this precipitate is due to some other principle which is not an alkaloid proper, for it is not extracted by the ordinary alkaloid solvents and is not precipitated by I in KI, or Mayer's solution.

A portion of S_1 was also rendered alkaline with ammonia

and extracted with chloroform; this extract after evaporation was tested for alkaloids with negative results. The residue of S_1, however, still gave the precipitate with phosphomolybdic acid.

Harley-street, W.

A RECORD OF 90 DIPHTHERIA CARRIERS.

BY ANGUS G. MACDONALD, M.B., C.M. EDIN., D.P.H. VICT.,

LATE BACTERIOLOGIST TO BOROUGH OF CREWE AND ASSISTANT TO MEDICAL OFFICER OF HEALTH OF CREWE.

As in typhoid fever, so in diphtheria, the carrier must be regarded as an important factor in the spread of disease.

The following tables are the result of an analysis of the findings of a bacteriological investigation of diphtheria in the borough of Crewe during a period of six months—March to September, 1910. The corporation of Crewe have been generous in supporting the carrying out of the investigation; and Dr. G. Granville Buckley, medical officer of health of the borough, has given his kind permission to use the records.

I shall be gratified if my criticism of the results should be accepted by my colleagues as a contribution towards the study of diphtheria, especially as regards the prevention of its spread. The term "carrier" or "positive contact" here used applies to persons who on examination were found to harbour the bacillus of diphtheria. The situations usually examined for the bacillus were the throat and nose, and the only other situation where the bacillus was found in this investigation is the ear. By examination of the throat is meant careful swabbing of the tonsils and pharynx; and of the nose, the passage of a swab slowly and carefully in and out through one or other nostril, separate swabs being used for each nostril.

Examination was undertaken on account of contact with a notified case of diphtheria, and the "contacts" were roughly divided into "home contacts" and "school contacts." Home contacts include the members of the family of the notified person, and also of neighbours and friends with whom contact about home was suspected or suggested. School contacts include all those examined at school, or rarely at workplace, on account of their contact with a notified person. The scheme of swabbing had to be modified at various times to suit circumstances and with a view to getting the best results, and in the end the attempt was always made to make the swabbing as wholesale as possible. The people have aided the efforts of the health authorities with wonderful readiness, but in various quarters opposition naturally was met with, which tended to lessen the satisfactory nature of the results and probably retarded the stamping out of the disease.

In a further paper I hope to discuss the epidemic in all its bearings, but meanwhile shall limit criticism to the carrier problem.

For the sake of comparison and of giving an idea of the relative proportion of things I give in tabular form the number of notifications received during the six months under consideration, and also various figures representing the amount of "contact" work done. The tables speak for themselves, and I have drawn out no percentage estimates or averages for any of the figures, having poor opinion of the utility of doing so, as the amount of work done—the estimation of the number and nature of the contacts to be examined, and the persistency with which the examination is followed out—is so much a personal and also local matter that no comparison could well be instituted with the work of others.

In the table of contacts, again, the approximate duration of known infectivity is given, and no average is struck. It is evident that the known period of infectiveness gives little idea of the whole period of infectiveness, and that even the known period would vary in different hands according to the local conditions—the facility afforded by the people for re-examination and the strength of the public health staff. It is evident, also, that to strike an average of known duration of infectiveness between cases that are found infective for some few days, and others whose infectiveness continues over a period of months, would be of no practical utility.

TABLE I.—*Showing the Number of Cases Bacteriologically Examined during the Months March–August, 1910.*

1910.	Notified and suspected cases.	Contact cases.			For release from quarantine: Hospital and home cases and contacts.	Total cases examined.
		Home.	School.	Total.		
March ...	43	65	49	114	56	213
April ...	70	117	99	216	140	426
May ...	95	95	101	196	141	432
June ...	63	106	171	277	148	488
July ...	61	83	31	114	159	334
August ...	42	68	193	261	130	433
Totals ...	374	534	644	1178	774	2326

The above table shows the relative proportion of cases actually examined, and does not include subcultures or duplicates, except of examination for release from quarantine.

It will be seen that the number of notified and suspected cases in March is fewer than the number of notified cases as shown in Table II., while in the other months that number is considerably higher than the notified number. The reason is that at first all the notified cases were not bacteriologically examined as they were afterwards, nor until the work was in full swing was there the same assistance from the medical practitioners, teachers, and others in bringing to notice suspected cases. In the schools the teachers took up the work of observation with enthusiasm, and all the children brought under observation were swabbed and referred at once to their medical attendant for treatment, whatever the condition might be.

TABLE II.—*Showing the Number of Cases of Diphtheria Notified in each of the Six Months, March–August; the Number of Contacts Examined, and those found Positive.*

1910.	Number of notifications.	Number of contacts examined.			Number of contacts found positive.		
		Home.	School.	Total.	Home.	School.	Total.
March ...	49	65	49	114	13	7	20
April ...	31	117	99	216	15	3	18
May ...	25	95	101	196	10	3	13
June ...	27	106	171	277	11	10	21
July ...	15	83	31	114	10	5	15
August ...	10	68	193	261	3	0	3
Totals ...	157	534	644	1178	62	28	90

It may be observed in connexion with this table that the cases of diphtheria found as the result of bacteriological examination of notified cases are fewer than the notified cases by a small and varying percentage, being smaller when there is much diphtheria and greater when there is little.

The chief point brought out in Table II. is the proportion of contacts found positive to contacts examined, and the relative proportion of positive home contacts to school contacts. The number of school carriers is also unduly inflated by the inclusion of 12 cases who were included on suspicion, and whose after-examination led to the belief that the bacilli which were the cause of suspicion were after all not B. diphtheriæ. They had characters sufficient to justify temporary observation in the presence of an outbreak of diphtheria, and the temporary quarantine and suspension from school were little hardship and a measure of safety.

All school carriers were found to be intimately associated at play with other cases and carriers, and mere class-room proximity was found to be of little importance as a factor in spreading the disease. The evidence all goes to indicate the very intimate means necessary for the transmission of diphtheria from one individual to another. In the home the positive cases have been found in most number amongst those who are naturally in closest communication, and the same holds for playmates in the same street and at school. This fact is of great importance, and indicates how readily, by prompt bacteriological examination and detection of positive cases, the dissemination of the disease may be prevented.

TABLE III.—*Details of 90 Carriers.*

No.	Sex and age.	Known duration of carrier period.	Remarks.
1	M., 12	6 weeks.	School suspect; bacilli in throat four weeks; in nose six weeks. Cases of diphtheria in his class.
2	M., 16	5 days.	Home contact of notified case. No history of illness.
3	F., 6	3 weeks.	School contact of notified case. No history of illness.
4	M., 3	5 ,,	Brother and sister home contacts; family of seven. Case at school where were other cases.
5	F., 1	3 ,,	No discoverable previous or current illness of carriers.
6	F., 6	3 ,,	School contact. No evidence of illness.
7	M., 6	Not ascertained.	School contact; notified two days later; treated at home; no other swabs obtainable.
8	M., 6	,,	School contact; left the district before another swab was obtained.
9	M., 9	2 weeks.	Home contact, brother of No. 20. No illness.
10	M., 7	1 week.	School contacts of No. 20. No illness admitted.
11	F., 7	2 weeks.	
12	M., 7	2 ,,	Home contact. No illness.
13	M., 7	2 ,,	,, ,,
14	F., 8	2 ,,	,, ,,
15	F., 7	2 ,,	School contact. No illness.
16	M., 11	4 ,,	Home contact, brother of No. 17; got no antitoxin; notified two days later.
17	F., 7	4 ,,	Home contact, sister of No. 16; got antitoxin; no evidence of illness.
18	F., 7	4 ,,	School contact. No illness.
19	M., 25	Not ascertained.	Home contact; out of work. Nursed notified sister on his knee. Went off to work 10 days later without having been re-examined.
20	M., 7	15 weeks.	Brother of No. 9. Bacilli remained in nose and throat; allowed to leave hospital under his medical man's supervision. Successive negative swabs obtained 10 days later.
21	M., 10	8 days.	Home contact. No illness.
22	F., 15	2 weeks.	Home contact of No. 23; not examined when No. 23 went to hospital. No sign of illness.
23	M., 6	2 ,,	Discharged from hospital; found positive in nose a week after discharge.
24	M., 27	3 days.	Father, mother, and brother of notified case. No illness; got antitoxin.
25	F., 26	3 ,,	
26	M., 1	3 ,,	
27	M., 13	Not ascertained.	Home contacts; four cases notified simultaneously; these then found negative. Baby of eight months notified a month later, when these were found positive; further examination obstructed.
28	F., 6	,,	
29	F., 35	2 weeks.	Home contact, mother of notified case. No illness.
30	F., 13	3 ,,	School contact. No illness.
31	F., 12	3 ,,	,, ,, ,,
32	F., 10	4 ,,	Home contact. No illness.
33	F., 6	3 ,,	School contact. No illness.
34	M., 27	12 days.	No. 34, home contact of No. 35. No. 35 was discharged from the hospital after three months' residence; remained positive in pus from ear; one negative result before discharge. Found positive and virulent eight months from onset of illness.
35	F., 45	8 months and still positive.	
36	F., 43	3 months.	Home contact. No illness.
37	F., 10	2 weeks.	Home contact. Vague history of "cold" and "sore throat" some weeks before.
38	M., 7	Not ascertained.	Home contact. No admitted illness; slight membranous rhinitis; bacilli found in nose; not re-examined.
39	F., 10	6 weeks.	Home contacts. No illness; had antitoxin.
40	F., 16	6 ,,	Sisters.
41	F., 31	5 ,,	Home contact of baby 1 year old. Atrophic condition of nasal and pharyngeal mucosa; a laundry worker; probably introduced the disease to home.
42	M., 1	3 ,,	Home contact, brother of Nos. 39 and 40; had no antitoxin; notified two days later.
43	F., 5	Not ascertained.	School contact.
44	M., 5	,,	,, ,, No illness; not re-examined.
45	M., 5	,,	School contact. Bacilli found in nose with membranous rhinitis; lost sight of.

TABLE III. *(continued).*

No.	Sex and age.	Known duration of carrier period.	Remarks.
46	M., 10	4 weeks.	Notified as scarlet fever; found also to carry B. diphtheriæ in throat.
47	F., 11	3 weeks.	Home contacts. No illness; antitoxin given; sisters; two others in hospital.
48	F., 14	3 ,,	
49	M., 3	3 ,,	Home contact. No illness; got antitoxin; one of family discharged from hospital two weeks before; found negative; other infection probable.
50	M., 9	4 ,,	Home contact. No illness.
51	M., 14	4 ,,	Home contact. No illness. At date of last examination found delivering bread from handcart.
52	F., 41	6 ,,	Home contact; mother of Nos. 39, 40, and 42.
53	F., 6	Not ascertained.	Discharged from hospital ten days before brother notified. Found positive in nose; mother (No. 36) still positive.
54	M., 10	,,	Home contact. No illness; no antitoxin; no pretence of isolation; three others in family notified during next fortnight.
55	M., 5	13 weeks.	Home contact; examination not obtained until after fresh case in own and next door family.
56	M., 5	12 ,,	Home contact; two days before found getting sweets straight from mouth of No. 55.
57	F., 19	2 days.	Home contact. No illness.
58	M., 7	Not ascertained.	School contact; lost sight of.
59	M., 7	3 weeks.	School contact ,, ,, No illness in self or family.
60	M., 7	2 days.	
61	M., 7	3 weeks.	,, ,,
62	M., 7	4 ,,	School contact; found No. 67 positive, had sore throat ten days before; also No. 66 notified later.
63	M., 7	3 ,,	School contact; no complaint. Found No. 68 at home positive.
64	M., 7	Not ascertained.	School contact; no complaint; lost sight of.
65	F., 8	,,	Home contact; no illness; re-swabbing not obtainable.
66	F., 6	3 weeks.	Sister of No. 62; found at home positive; notified two days later, before antitoxin given.
67	M., 9	3 ,,	Brother of No. 62; glands enlarged; had "mumps" ten days before.
68	M., 2	3 ,,	Brother of No. 63; had antitoxin at once; no symptoms of illness.
69	F., 7	2 ,,	Scarlet fever case in hospital; possible school contact; bacilli proved virulent.
70	F., 5	1 week.	School contacts. For various reasons on suspicion included as carriers, but as repeated examination of cultures failed to yield isolated colonies of B. diphtheriæ the cases were not followed.
71	F., 5	Not ascertained.	
72	M., 5	,,	
73	M., 6	2 weeks.	School contact; frequent sore throats; no notice taken of recent illness.
74	M., 6	Not ascertained.	School contacts. No. 73 alone of this group gave a pure culture, and as holidays supervened the cases could not easily be found for further swabbing.
75	F., 6	,,	
76	M., 6	,,	
77	F., 6	Not ascertained.	School contact.
78	M., 7	3 weeks.	Scarlet fever case; probable school contact.
79	F., 7	Not ascertained.	Home contact; had "rheumatic fever" shortly before; further swabbing refused.
80	F., 21	4 weeks.	Home contact ,, ,, No symptoms of illness; got antitoxin.
81	F., 2	4 ,,	
82	M., 11	4 ,,	Home contact; no illness; got antitoxin.
83	M., 7	7 ,,	Home contact; chronic membranous rhinitis; bacilli proved virulent.
84	F., 4	4 ,,	Home contact. ,, ,, No illness; had antitoxin.
85	M., 16	2 ,,	
86	M., 3	3 ,,	,, ,,
87	F., 9	3 ,,	Home contact; notified a day later, before having antitoxin.
88	F., 41	1 week.	Home contact; no illness.
89	M., 13	1 ,,	Home contact; son of No. 88.
90	F., 8	6 weeks.	Scarlet fever case; acute and lingering rhinitis; bacilli proved virulent.

Antitoxin was recommended in all cases of immediate contacts, positive or negative, and administered in most, although it has not been possible to ascertain the number of cases who had antitoxin privately administered.

In criticising the series of carriers set out in Table III., it will be seen that they may be divided into four definite groups. First, there are those who show no clinical evidence of diphtheria and in whom the bacillus diphtheriæ is found for a short time. These persons probably possess some immunity or have a bacterial flora in the mouth or nose inimical to the bacillus diphtheriæ. Secondly, we find cases in whom a history of "cold," "sore-throat," "mumps," &c., some time previously may be elicited. They may also have some form of paralysis, and are obviously neglected cases of diphtheria. Thirdly, there are cases without a clinical history of diphtheria, but with some local lesion of the throat, nose, skin, ear, &c., where the bacillus diphtheriæ finds continued lodgment—membranous rhinitis is the most common lesion found. Fourthly, akin to the third group are those who have passed through a definite attack of diphtheria, and in whom usually associated with some pathological lesion the bacillus diphtheriæ remains for lengthy periods after convalescence.

The diagnosis of these carriers was, in the largest proportion, made from microscopical demonstration of the bacillus diphtheriæ obtained from isolated colonies. The exceptions mentioned in considering Table II. were temporarily diagnosed from bacilli observed in mixed preparations—the microscopic preparations are extant. "Virulence" is probably legitimately assumed where morphologically typical diphtheria bacilli are found in individuals intimately associated with clinically and bacteriologically typical cases of diphtheria. In a few cases where doubts as to virulence might be raised—the scarlet fever cases and the prolonged cases—virulence was established by the physiological test at the Public Health Laboratory, Manchester, under the supervision of Professor Sheridan Delépine, to whose courtesy and kindness the permission to use the reports is due.

As a rule, when a carrier is found in association with a case there is nothing, except history of previous contact, to indicate which carried the bacilli to the other, although in some cases a pathological lesion or the bacterial flora may suggest a long-time carrier.

The fate of the bacillus diphtheriæ when it disappears from an infected person is not obvious. There is no evidence of phagocytosis in the affected regions; and the most probable explanation is that it disappears before the growth of some organism for which the environment for the time being is more favourable. The total disappearance of the bacillus diphtheriæ is very surprising in those cases where it is found for only a short time. In the chronic cases it seems usually to beat a slow retreat before a staphylococcus; and "ghost" forms of bacillus diphtheriæ are commonly to be found amongst the staphylococci for some time after the bacilli have ceased to be successfully isolated.

In some of the chronic carriers attempts have been made to implant on the pharynx and nasal passages flora which observation suggested might be inimical to the growth of the bacillus diphtheriæ; but although some of these implanted organisms were recovered on subsequent swabs, the bacillus diphtheriæ continued to grow. It seems probable, nevertheless, that further prosecution of work on these lines may result in finding harmless organisms whose implantation and growth on diphtheria-infected persons may result in ousting the bacillus diphtheriæ from its usual haunts. The administration of antitoxin has no apparent effect on the persistence of the bacillus diphtheriæ in carriers any more than in cases.

In addition to the foregoing observations the lesson of these carriers may be briefly summed up as follows:—

1. Carriers are found at all ages and of either sex.

2. The previous carrier period cannot be ascertained, but may in some cases be inferred.

3. Nor can it be said in many cases that one case was derived from another—that is, the carrier found may have given the disease to those around, or may only have just received it.

4. The presence or absence of an obvious pathological condition is no criterion of the fact of a carrier, of the length of carrier life, or of virulence.

5. The length of carrier life seems to have no effect on virulence: bacilli have been demonstrated to be virulent after four and eight months in the ear and nose of different individuals.

6. Carriers are found amongst those most intimately associated with other carriers or cases; at home between mother (nurse) and child, and child and child who play together; at school the carriers found are few and always closely associated (in play and not necessarily in school-room proximity) with some other carrier or case.

7. The control of diphtheria depends (assuming control of the case) on the control of the carrier.

8. The carrier should be notified as a case of diphtheria, no matter of what age or sex, and due quarantine and observation should be maintained until satisfactory demonstration of the disappearance of the bacillus diphtheriæ.

9. As everything points to the conclusion that the bacillus diphtheriæ is essentially a human parasite (a saprophytic existence is not evident; the transference from animal to human is at any rate rare, and many cases of apparent transport by milk and other agencies are manifestly from human contact), a determined attack on the lines of thorough bacteriological investigation should have no difficulty in stamping out diphtheria altogether from the land.

10. Evidence points also to the slow, inevitable, mechanical distribution of the disease which persists endemic in the undiscovered carriers. Epidemicity depends entirely upon the number and nature of the carriers; the headway that has been attained before preventive measures have been effectively used, and upon various sociological factors more or less under the control of the authorities. The invocation of miracle, of meteorological factors local and universal, of special intensity of the virus, *et omne ignotum*, which is the commonplace of authority to-day, might surely give way to the recognition of simple, natural, open-eye causation.

GRAVE AND PROLONGED CARDIAC FAILURE FOLLOWING THE USE OF COCAINE IN DENTAL SURGERY.

BY FREDERICK W. PRICE, M.D. EDIN., M.R.C.P. LOND.,
PHYSICIAN TO THE GREAT NORTHERN CENTRAL HOSPITAL; PHYSICIAN AND HONORARY PATHOLOGIST TO THE MOUNT VERNON HOSPITAL FOR DISEASES OF THE CHEST;
AND
A. B. LEAKEY, M.B., C.M. EDIN.

AT a time when the question of the administration of local anæsthetics by unqualified persons is attracting attention we think it desirable that the following case should be put on record. In our opinion it illustrates in a striking manner the risk with which such is accompanied. Not only did the patient have a remarkable escape from death at the time, but she had a dangerous relapse several weeks after, and was seriously ill for some months.

The patient was a woman, 34 years of age. Her previous illnesses were occasional "sore-throat" during childhood, scarlet fever at 19 years of age, and two attacks of influenza some years ago. She had never suffered from indications of cardiac weakness; on the contrary, she was a strong, healthy woman, who was able to run races with complacency. In the early part of December, 1908, she had five teeth of the upper jaw removed by an unqualified person under a local anæsthetic made up of cocaine, iodine, and carbolic acid. The patient fainted during the operation, and alcohol and other restoratives had to be resorted to. Afterwards she complained of feeling faint, "shaky," cold, and of numbness. These symptoms continued during the journey home, and there was a sense of suffocation, and the patient volunteered the information that she "could not properly feel her feet as she was going along." She was put to bed, but still complained of feeling faint and seemed not fully conscious. Hot bottles and flannels were applied to the legs. During the night she vomited. She had an appointment with the operator for 10 A.M. the following day, but felt so ill that she was unable to reach there until about 4 o'clock. She told the operator of the symptoms already enumerated, but upon his assurance that it was all right, eleven teeth were extracted from the lower jaw under a local anæsthetic. The patient seemed to have quickly lost the power of speech and sight, and felt faint. During the journey home she also complained of a sense of suffocation, tremors, jerkings, and powerlessness of the limbs, loss of sensation of the legs, shortness of breath,

and great coldness. After reaching home she fainted, and her condition became apparently so grave that Dr. Leakey was sent for.

On reaching the patient about 9 P.M. she was found lying in a low chair, in an almost completely unconscious condition, extremely pale and cold, the skin moist and clammy, the breathing rapid and shallow, and the pupils dilated; the back was stiffened, there were tremors and muscular twitchings, and the knee-jerks and other reflexes were greatly exaggerated; there was no appreciable pulse at the wrist; the apex-beat was slightly outside the nipple line, very feeble, and somewhat irregular; no bruit was detected; the temperature was subnormal, and there had been some vomiting. Hot brandy, strychnine, digitalis, and aromatic spirit of ammonia were administered, and the patient was lifted into bed. During the night there were repeated syncopal attacks and other indications of grave cardiac failure. The next morning the pulse was rapid and extremely feeble. The coldness of the extremities continued for three days, by which time a faint mitral systolic bruit was audible.

At the end of a week the patient was allowed to sit up in bed, and a few days later was lifted on to a couch. She went out of doors for the first time on Jan. 18th, and commenced walking with support a few steps at a time. She complained much of sleeplessness, "started" on dropping off to sleep, and had very disagreeable dreams. In the fourth week, during a short walk one morning, she had a severe syncopal attack and had to be taken home in a bath chair. On examination she was found very collapsed and pallid, with an irregular pulse and evidences of dilatation of the left heart. During the night there were frequent syncopal attacks, and the following day her condition was considered so serious that Dr. Price was called in consultation. He found her with a pulse of 90 per minute, regular, exceedingly small and feeble, and of low tension; apex-beat outside the normal; a faint mitral systolic bruit audible; knee-jerks slightly exaggerated, and suggested the following treatment. Much light nourishing food, strychnine and digitalis (later iron and arsenic), hypnotics, to be kept flat in bed for a week, gradually sitting up during the second week, to be lifted out of bed the third week if progress satisfactory.

The patient was seen again in consultation on March 8th. Progress had been so slow that she had not been allowed out of bed until March 7th. She was very feeble; pulse 80 per minute, still extremely feeble and small, though better than on the last examination; apex beat rather outside normal position; advised to be kept in bed for a week. She was carried into the next room on March 14th, and walked there on the 31st. A third consultation was held on that day, when the pulse was found to be somewhat stronger and fuller. The patient had suffered from constipation, and complained of a feeling of great weakness after the administration of aperients. Altogether the progress was very slow. On April 25th she went out for the first time again in a bath-chair. She began to walk on May 15th. It was not considered advisable to let her go home to Leicestershire until July 29th. On Oct. 26th she only complained of a feeling of exhaustion after considerable exertion, and of irritability on slight provocation. The pulse was then much larger and stronger, but still not quite up to the normal; there was a very faint localised mitral systolic bruit.

In our view it is beyond doubt that the case was one of cocaine poisoning and that the symptoms of the first two days were typical of that condition in its acute form—on the first day in a comparatively mild degree, and on the second in an alarming degree, when a fatal termination was very narrowly escaped. We believe that the heart muscle was severely damaged by the poison, and that this accounts for the subsequent slow progress and serious relapse. In our judgment it is a matter of very grave concern that according to the present state of the law it is permissible that anyone without a medical training necessitating an adequate acquaintance with the physiological effects, proper dosage, and poisonous manifestations of cocaine may administer this drug as a local anæsthetic. We think the operator should have possessed the knowledge that the symptoms of the 24 hours following the first extractions enumerated by the patient and her sister were certainly those of a comparatively mild degree of acute cocaine poisoning, in which case he would no doubt have adopted proper precautions, instead of which he admittedly administered a larger quantity of the drug.

TWO UNCOMMON FORMS OF DEFORMITY OF THE FEMALE GENERATIVE ORGANS, ONE CAUSING SYMPTOMS SIMULATING INTESTINAL OBSTRUCTION.

BY JOHN A. C. MACEWEN, M.B., B.SC. GLASG., F.R.F.P.S. GLASG.,

SENIOR ASSISTANT TO THE REGIUS PROFESSOR OF SURGERY, UNIVERSITY OF GLASGOW; SURGEON TO THE ELDER HOSPITAL, GOVAN; ASSISTANT SURGEON, GLASGOW ROYAL INFIRMARY.

CASE 1. *Absence of body of uterus and right appendages; presence of myoma and calcified dermoid.*—A married woman, aged 46 years, was admitted to the Royal Infirmary under my care when acting for Mr. P. Paterson on Sept. 21st, 1909, suffering from symptoms pointing to intestinal obstruction. A year previous to admission she had an attack of colic which lasted for a few days. On the present occasion a much more severe attack of colic came on two days prior to admission, the pain being referred principally to the umbilicus. Vomiting occurred twice on the first day of the present illness, while the bowels moved twice on the day previous to admission. Since then the bowels had not moved, nor had flatus been passed, notwithstanding frequent doses of castor oil and the administration of enemata. Blood had never been passed per rectum. There was frequency of micturition. The climacteric had occurred two years previously.

On admission the pain had become less severe, the temperature was 102° F., and the pulse 130, irregular, thready, and feeble. The abdomen was distended and tender to palpation, particularly over the left iliac fossa, where a large mass was easily detected on palpation, which was dull to percussion. Its mobility could not be tested owing to tenderness and abdominal rigidity. On vaginal examination the cervix was found to be normal in position and direction, but small and ill-developed. The uterine sound could not be introduced into the canal, but an ordinary probe went in for about an inch. The fundus could not be detected. The vaginal roof on the left side was occupied by a mass which was tender to palpation, while on the right side a hard rounded mass was detected which projected towards the rectum, and was easily felt on rectal examination. This mass was of about the size of a golf ball and was fixed.

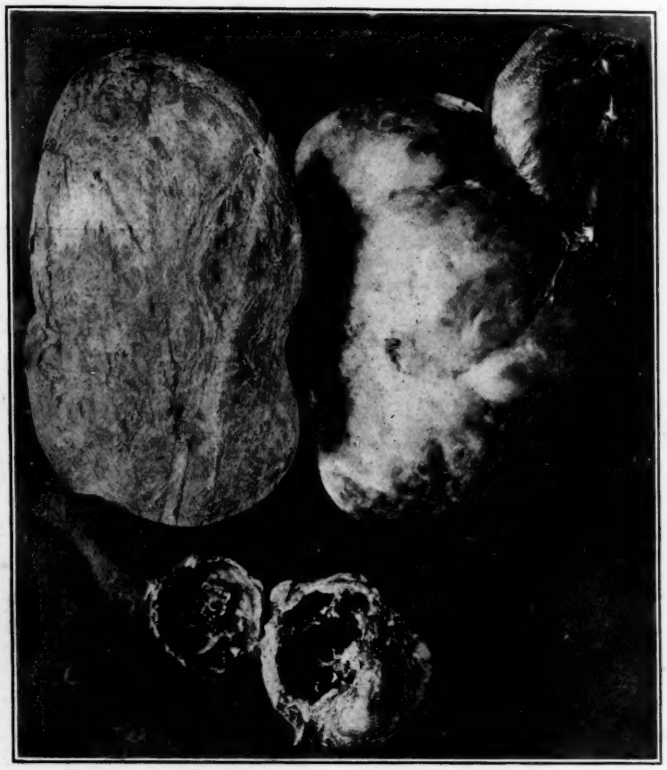
Two enemata were given, but without result, and operation was decided upon. A median vertical incision was made below the umbilicus; the peritoneal cavity was opened and a quantity of sanguineous fluid was evacuated. A large tumour, subsequently ascertained to be fibromyomatous, at once presented. This tumour, roughly spherical in shape, and fully 5 inches in length, was freely moveable, being attached to a pedicle, also some 5 inches long, which had become twisted and was partially gangrenous. The pedicle was ligatured down close to what was supposed to be the serous surface of the uterus, and the tumour removed. The left Fallopian tube was also in a gangrenous condition and was also removed. The left ovary appeared normal but of small size. While this tumour doubtless accounted for many of the symptoms it did not explain the condition felt per rectum, and on passing the finger down along the course of the rectum a mass was now detected. On placing the patient in the Trendelenburg position and examining the parts it was found that there was no uterine body present, the peritoneum being reflected from the rectum on to the bladder much as in the male, save that on the left side there was an ill-developed broad ligament, with the gangrenous tube already mentioned, and fairly normal ovary. On the right side the appendages appeared to be entirely wanting, while a little to the right of the normal position of the uterus the hard mass referred to presented. The pelvic peritoneum, together with a subjacent layer of fibrous tissue overlying the tumour, was now incised and a portion of what appeared to be bone presented, which emitted a slightly hollow note when tapped. As my assistant said, the mass resembled a very small, well-ossified fœtal head. Endeavours were made to remove the mass, which, after considerable difficulty, was shelled out, and was found to consist of a roughly spherical shell of osseous matter (Fig. 1), which contained an oily material at

first sight resembling pus. No hairs, teeth, or other tissue elements were present. This wound was packed for 48 hours, and the patient made an uninterrupted recovery save for slight transient jaundice for a few days after operation.

The intestinal obstruction in this case was probably due to the pressure of the fibromyoma on the bowel, but no evidence was obtained of any portion being damaged thereby. While the calcified dermoid certainly projected into the rectum, it must have done so for a considerable period previously, and hence its influence may probably be discounted.

It is interesting to note that this woman, according to her statement, had menstruated regularly. She was married, but naturally had no family. The presence of ovary and tube on the left side, albeit small, would probably account for the regular menstruation. Did the fibromyoma, which on section was perfectly solid and hard, with its pedicle represent the muscular substance of the uterine body which had begun to enlarge after the climacteric, and did the dermoid represent the right ovary? (Fig. 2.)

FIG. 1.

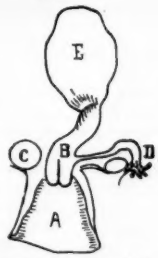


Myoma in section: dermoid after removal.

CASE 2. *Absence of the lower end of the vagina.*—A girl, 16 years of age, was admitted to the Royal Infirmary on Sept. 8th, 1908, suffering from what was diagnosed as appendicitis with abscess. Three days prior to admission she was suddenly seized with severe colicky pain referred to the umbilicus at first, but which later became located over the right iliac region. This pain was practically constant, and she was given morphia for its relief. She had a somewhat similar attack two months previously, which, however, was less severe, and lasted only for a few hours. On her way to hospital she vomited twice.

On admission the temperature was 99·2° F. and the pulse 120. The abdomen generally was not distended, but there was a distinct tumour mass in the right iliac region which was not only easily palpable, but visible. The abdomen in his region was rigid and the mass very tender to palpation. Percussion over the mass gave a dull note. The bowels had moved regularly, and the tongue was clean. Menstruation had not yet begun. A rectal examination revealed a large fluctuant swelling on the right side, a wave of fluctuation being transmissible from the rectum to the swelling in the iliac fossa. There was no swelling in the perineum, nor suggestion of abnormality from the appearance of the external genitals. A vaginal examination was not made.

FIG. 2.



Diagrammatic representation of parts in the first case. A, Vagina laid open. B, Rudimentary cervix connected by pedicle to myoma (E). C, Dermoid replacing right appendages. D, Left appendages. E, Myoma replacing fundus uteri.

On the morning following admission the temperature had fallen to 97°, while the pulse had risen to 140, and I was asked to see her. The pulse-temperature ratio being unsatisfactory, and the patient obviously suffering, it was determined to operate. Under chloroform the mass in the iliac region became, if possible, more obvious, while it retained its hardness to touch. On opening the abdomen a mass of omentum was found in front of the swelling, which had been crushed by the swelling against the abdominal wall, and had become gangrenous from ischæmia. This mass was removed and the subjacent swelling investigated. It was immediately recognised to be the uterine fundus, which was pushed up against the omentum and abdominal wall by an enormously distended vagina. A finger was now introduced from the vulva into what appeared to be the vagina, but which was found to be a greatly enlarged urethra, the finger going straight and with the greatest ease into the bladder. Careful examination revealed the fact that there was no vaginal opening, there being only a greatly enlarged urethra, which expanded at its outlet to occupy the greater portion of the perineum, there being only a short interval between its lower border and the rectum. It was now seen that the case was probably one of retained menses arising, not from imperforate hymen, as is usually the case, but to entire absence of the lower portion of the vagina, and it became a question as to how the vagina might best be opened into without injury to the bowel. It was thought that, on applying pressure to the abdominal mass, a slight bulging of the posterior urethral wall high up took place, and accordingly an incision was made in the posterior urethral wall, about 1½ inches from the orifice, and, on deepening the incision, some two pints of dark fluid blood were evacuated, the abdominal swelling meanwhile subsiding. While the vagina was, of course, much distended, the uterus was small, but apparently normal. The opening into the vagina was now packed and the abdominal wound stitched up. The patient made an uninterrupted recovery, and has since menstruated regularly. Subsequent attempts by means of a plastic operation to narrow the urethra and widen the mouth of the vagina, and also to bring it to the surface, were only partially successful, and a further attempt is contemplated.

Probably two developmental factors were at work in this case. Normally the Müllerian

ducts open into the urogenital sinus about the end of the second month of intra-uterine life—the want of opening, therefore, would here date from a very early period of fœtal existence. Further, the fused Müllerian ducts open normally into the urogenital canal some distance from the surface, and only reach the surface by shortening of the sinus. In this case the shortening did not occur, and the patient was thus left with a large "urogenital" urethra, the vagina ending blindly about 1½ inches from the normal position of its orifice (Fig. 3).

FIG. 3.

Diagrammatic representation of the parts in the second case. A, Uterus projected against abdominal wall by distended vagina, which ends blindly in pelvis. B, Omentum crushed by uterus against abdominal wall and rendered ischæmic and gangrenous. C, Symphysis with bladder above and behind it. D, Rectum. E, Abnormally large urethra expanding to occupy whole vulvar orifice.

It will be seen that Case 1 presented symptoms suggesting intestinal obstruction from internal strangulation, while Case 2 resembled a case of appendicitis with a large abscess occupying the pelvis and pointing through the abdominal wall. In the first case the twisting and gangrene of the pedicle of the myoma probably gave rise to the temperature and pulse symptoms, while in the second the gangrenous omentum probably fulfilled a like function. Apart, however, from the confusion of symptoms presented, the writer ventures to think that the cases are in themselves of sufficient interest and rarity to justify their being recorded.

Glasgow.

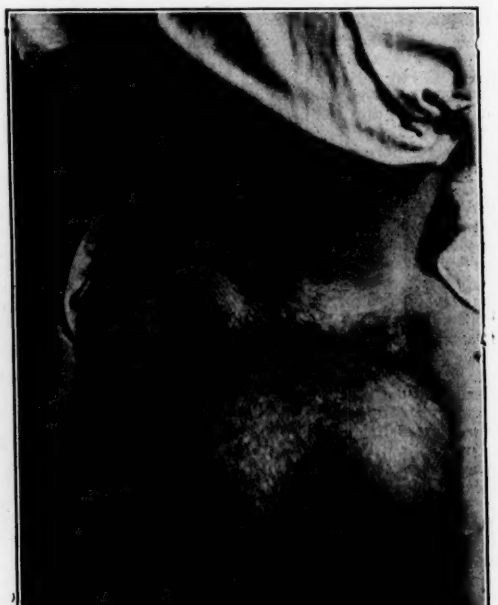
NUCHAL LIPOMATA IN THE LOWER ANIMALS.

BY SIR JONATHAN HUTCHINSON, F.R.C.S. ENG.,
CONSULTING SURGEON TO THE LONDON HOSPITAL, HOSPITAL FOR DISEASES OF THE SKIN, BLACKFRIARS, ETC.

THE following note may be regarded as a kind of appendix to my article on Diffuse Lipoma published in THE LANCET of Nov. 26th, 1910, p. 1537. In that paper I advanced the opinion that what we have called the "diffuse lipoma" finds its principal form mainly in the male sex, and that it has its site in the fat which accumulates in certain regions around the roots of hair follicles. Its common position is at the back of the neck, and it might indeed be known as diffuse lipoma of the nape. In support of the statement that the fat which in this malady undergoes hypertrophy is that which imbeds the roots of large hairs I mention the facts that the region affected is that which in many animals grows the mane, and that in the human subject the same hypertrophy occasionally occurs in the pubic region around the roots of the large pubic hairs. In this latter position, although slight degrees of it are probably very common, examples sufficiently exaggerated to attract attention are probably rare. Still more infrequently are the matters of [illegible]nder the attention of the surgeon.

I am now able to produce from a photograph one of these cases. It will be seen in the illustration that huge masses of fat are developed from the mons and adjacent parts, and are of such a size as completely to conceal the genitals. The patient was a man in whom very large masses had also developed on the nape of the neck and adjacent parts. Both from the nape and from the pubes the tumours were excised and were found to be huge masses of ill-defined fat developed immediately beneath the skin and closely adherent to it. The patient was a stout man in good health, but with no remarkable accumulations of fat in other parts than those named. It is the only case in which it was necessary to excise the pubic growths, and it affords proof that there is tendency in the same direction in these two regions.

It will be remarked at once that there is very seldom in the human subject any very marked tendency to the growth of large hairs in the back of the neck, and the next point I wish to establish is that certain animals in which a mane is present in this region there is a liability to fat hypertrophy about the roots of its hairs. Slight forms of this are, I believe, not very unusual, although I am not aware that any account of them has ever been published. My own experience is almost limited to asses, and at present I have under observation in two asses owned by two neighbours very remarkable examples of them. In the ass the overgrowth of fat begins at the root of the mane, and constitutes in slight forms and



Masses of fat in pubic region.

in all early stages simply a thick neck. Although placed mainly in the middle line there are, it may be observed, evidences of some central demarcation into two parallel masses which run side by side from the nape of the neck to the top of the withers. As the masses increase and become welded in one they tend to sway the mane over to one or other side. In one of the two asses mentioned above the mane is carried over by its roots to the right side, and is made to some extent irregularly pendulous. The tumours are never painful and usually the animal appears to be pleased to have them handled or rubbed.

Two points of interest must be mentioned. In the human subject these nuchal diffuse lipomata are met with, I believe, almost solely in males of middle age, and in those accustomed to drink malt liquor. The evidence given was that the patients were exceedingly fond of it, but it was not thought that they had any opportunity of over-indulgence.

I have no doubt that sex as well as habits of diet have something to say in the production of these hypertrophies, and especially with their location. In several instances in the human subject I have witnessed definite subsidence of the tumours as the result of abstinence, and conversely a few weeks of beer-drinking will cause the tumours very perceptibly to increase.

In the ass I have not as yet met with them in the female subject, and, curiously, those in which I have seen the tumours were castrated males. They were both well-conditioned animals and had been well fed and not overworked.

Anyone specially interested in this subject can have an opportunity for examining the asses I have mentioned by a visit to Haslemere (after due notice and by appointment).

Chenies-street, W.C.

CLINICAL ASPECTS OF SOME VARIETIES OF EXCITEMENT.

BY W. T. MUNRO, M.B., CH.B. ST. AND.,
ASSISTANT MEDICAL OFFICER, ARGYLL AND BUTE DISTRICT ASYLUM, LOCHGILPHEAD.

THERE are numerous conditions of acute mania, or of delirium, with which one comes in contact in the work of a mental hospital, and many of these cases can be separated and differentiated and referred to a particular form of insanity. Perhaps most patients with any maniacal or excited condition (with the exception of acute alcoholic excitement), when certified, are looked on by the medical man as cases of mania. The object of this short paper is to try to give some points in the diagnosis which will help the general practitioner to form an accurate diagnosis and place his maniacal patients in the correct group of cases.

We have states of (1) mental exaltation or mania proper; (2) alcoholic excitement or delirium tremens; (3) excitement in general paralysis; (4) katatonic excitement; (5) semi-conscious epileptic states; and (6) excitement in dementia præcox. Let us look at such patients, and I will try to illustrate cases to give the differential points for an accurate diagnosis.

Perhaps the most common are those who suffer from acute alcoholic excitement. The general symptoms may be well known, but I give a case.

CASE 1.—Man, aged 42 years, admitted Jan. 17th, 1911. He was very restless and excited, but one could retain his attention for a minute or two, and on asking him where he came from he could tell us. He could also tell us what he did, and admitted that he had been drinking very heavily since the new year. He did not know where he was, and although he had been admitted only half an hour before examination he thought he had been here for a few days. Restlessness was extreme. He would lie still for perhaps two minutes, then would suddenly jump up as if he feared something. Again on lying quiet he would follow with his finger all round the walls and ceiling again to jump up suddenly. On asking him what he saw he described them as devils and dragons, and said he could not catch them. He was also very incoherent in his speech. He seemed to be apprehensive and to fear something. If shown anything such as a thread on his bed he lay and looked at it for a minute or two and then made a grab at it. He would also suddenly grab at the blankets at if he wanted to catch something. He was very tremulous, and his outspread fingers showed strong jerky tremors. His tongue was thickly furred and tremulous. His temperature was 100° F. and his pulse rapid. Knee-jerks were exaggerated; pupils were normal. There was a slightly dilated heart.

Now to examine the case. The patient is collected to a certain extent, but he has no idea of place or time. He can tell us what he does and where he comes from, but he does not know where he is or how long he has been here. Again, there are most vivid hallucinations of sight and continued restlessness, and the physical examination. The diagnostic features are the following: The tremor, the restlessness, the vivid character of the hallucinations of sight, the want of clearness of ideas of time and place with other signs of collectedness; and the physical features, such as temperature, pulse, slight enlargement of the heart, and exaggerated knee-jerks, are very common.

After an interval of four days the patient has recovered; he has lost 6 lb. in that time, but has gained 12 lb. since.

The next delirious condition which I wish to mention is the following:—

CASE 2.—A man, aged 39 years, was admitted on Nov. 2nd, 1910. When admitted he greeted me as an old friend and at once asked me to go to London with him. The history previous to admission was that the night before he had suddenly become unmanageable, threatening to kill his wife and children. He denuded himself, declaring that the voice of God had come to him telling him to remain nude till the Day of Judgment, and he threatened to kill anyone who came near him. Previous to that he had been perfectly well and working every day. He was put to bed but was very restless, tossing about in bed, wanting to get up, throwing the bed-clothes about him, while his movements were very tremulous. Then he would sit up and talk to himself in a most silly manner. On being spoken to he would be roused to attention for about a minute, and he told us where he came from, that he was a grand singer, and that when he sang the whole world heard him. He was very divertible; jumped from one subject to another at once. He was only to be here for a night, when Lady —— was coming for him in a flying ship. The night after admission he became violent, jumped up suddenly, attempted to jump out by the window, and cut himself slightly; then he said he was very foolish to have done so. Like Case 1, he seemed to be very apprehensive. He is also very tremulous. He tells us he sees a motor-car coming for him, then he sees Lady ——'s flying machine.

Now there are certain features which are much like Case 1. There is the tremor, the uncertainty of movement, the continued restlessness, the apprehension, and the hallucinations. Now with only the above features, and if these were not carefully noted, one might go wrong, but there are certain deviations from the picture of Case 1. Our patient is more confused and he has the most impossible delusions, while he has not the exceedingly vivid hallucinations of vision. To examine our patient further, one would notice at once that his speech was slow, syllabic, and slurring. His pupils were unequal, but reacted to accommodation, and, slightly, to light. There is no expression in his face. His tongue is tremulous, the knee-jerks are markedly exaggerated, no ankle clonus. Babinski positive, and he has a psoriasis all over his body. It is a case of general paralysis, and now we see there was nothing remarkable in his delusion that when he sang the whole world heard him. Question him further he tells us the church he sings in is his own and is painted in all the colours known. Moreover, he is very wealthy. As to causation, he has been a sailor, sailed to St. Malo and Dunkirk, but there is no evidence of specific infection.

What are the diagnostic features? We have the delusions of grandeur, the divertibility, the rapid change from one subject to another, the change of consciousness of personality, the motor symptoms, the tremor, the unequal pupils, and, on physical examination, the condition of the reflexes.

The third patient whose condition I wish to describe is, perhaps, more interesting than either of the two previous cases:—

CASE 3.—Woman, aged 27 years, a tinker. She also exhibits several features which might easily be spoken of as acute mania. Her excitement is only paroxysmal, but if seen during that stage, and only then, and not carefully examined a wrong diagnosis might easily be made.

Our patient's excitement is best seen just after meals. First, she will not start to eat anything whilst the others are at their food. Now try to take away her food—she resists. Trying to persuade her to take her food makes no difference. She will not even look up. Her face is expressionless; then try to remove her food, she resists and becomes very excited.

She calls out "Oh God! Oh God!" repeating herself several times, will clutch bread in her hands, and resist all effort to remove it. She now becomes abusive, swears at one badly, and will tear one with her fingers. You speak to her, she repeats what you say over and over again, to again become very abusive. During this stage she may attack the nurse, and does so with great cunning. Now leave her alone, she will lie back with her food, but still talks angrily, repeating herself again and again. In a short time she is quiet, and one would notice that she lies rigidly in one position. Now to note the condition as far as we have seen. There is excitement, but there is more. The perception of

the patient is perfect. Is not the condition negativism? There is first the attempt to persuade her to eat, and she never gives you any indication that she has heard you, but lies quiet; no words from her, but she will not eat. Now try to remove her food, again she is negative; and this time there is the excitement with also a repetition of phrases.

Further, a pin can be stuck into this patient's forehead and she will not wince, and if we lift an arm it remains in the position we put it into for about a minute, and gradually falls down. I have pointed out the negativism: Why is she negative? Is it from any delusion or apprehension? It cannot be from either. There is nothing in the behaviour of the patient to suggest that there is any apprehension or delusion. Again, why should she not wince when a needle is pushed into her forehead, and become excited when a gentle hand is put on her? Clearly we have to deal with a case of negativism, an instinctive opposition without foundation from delusion or apprehension.

My diagnosis is katatonic excitement. We have as diagnostic features the abrupt alternation between senseless excitement and rigid tension, the taking up of peculiar attitudes, the confusion of talk with complete comprehension, the meaningless repetition of the same words.

The next patient I wish to mention shows a condition of apprehension.

CASE 4.—Woman, aged 50 years, for the past fortnight has shown a condition of terrified apprehension. She is very excited, and every time one goes near her she calls out with a frightened look, "Oh God! Oh God! it was not me," repeating this over and over again. She varies her words "You won't do it," "I did not do it," "Why am I put here?" Then she will catch hold of you and implore you "Don't leave me," "I did not do it." Again, if I spoke to the nurse, she complained that we were speaking about her and making up our minds what we should do with her. She could easily hear what was said to the nurse, but she did not appear to understand what was said. Clearly, she is in a state of terrified apprehension. You speak to her and ask what is the matter; you cannot get any answer. She still continues in the same excited, apprehensive state, and she does not understand what is said to her. There is more or less stupor. There are features like Case 3. There is the meaningless repetition of words with excitement, but there is a great distinguishing feature in the fact that the patient is stupefied. Now again our patient is very restless, she is not in bed and she will not sit still any longer than a minute, but gets up and moves from one place to another. There is great uncertainty in her movements and she even hits out at times. This condition of seeming ignoring of questions is not negativism. She is stupefied. Again, she is quiet for, perhaps, a minute, and you can move her arms about without any hindrance from her own will. Her excitement is meaningless and her assaults are without the adroitness of Case 3. Her talk is very disconnected, but, unlike Case 3, it is comprehensive in that the whole talk is due to apprehension. The condition is a dream-like one, with changing incidents and fluctuations of emotions of an apprehensive nature and utterances in accord.

Consider the case. Here again we have excitement or delirium. What are we to eliminate? We may exclude the alcoholic form on account of the profound stupefaction, also from the want of tremor and the want of the vivid hallucinations of vision. Alcoholics are not nearly so stupefied. You can arouse them to answer you and even to give a correct answer. They are collected to a certain extent. The clouding of consciousness is too deep for ordinary fever delirium. Exclude katatonic excitement by the want of perception and hence no negativism. Again, we do not have the repetition of phrases and abuse of katatonia, nor do we have the alteration between senseless excitement and rigid tension. Our patient's excitement is continuous. Clearly we have a condition of delirium the result of an apprehensive state of mind. We have profound disturbance of comprehension, active delirium, extreme apprehension, an inclination to reckless acts of violence, and the condition of stupor along with excitement corresponds to certain epileptic semi-conscious states. The only thing else noteworthy is the condition of the pupils. They are dilated and react very feebly to light.

This patient has now recovered and does not remember anything at all about her condition, but says she must have been very ill. There is little doubt that the condition is an epileptic one. In this patient we actually have a history of fits. But apart from fits we have irritability and real bad temper just before this semi-conscious epileptic state. A typical feature of epileptics is piety alternating with irritability. At the time of writing our patient is reading the Bible.

My next patient is more impulsive. Like all the previous cases, she is subject to outbursts of excitement, and she exhibits some features which are different from them all.

CASE 5.—Woman, aged 28 years, up to a few days ago had remained very quiet, but has now reached a state of excitement. She chatters in a confused way—really a senseless playing with words. She runs about the ward, moving from place to place, is very impulsive, apt to do most reckless things, will push her fist through the window, will smash dishes, and has attacked a nurse. She is very abusive, and grimaces, making most hideous faces.

As far as we have seen, the most outstanding features are the impulsiveness and the grimacing. She is quite collected. If you ask her questions she answers only in monosyllables, and very slowly. In a short time her outburst of excitement is over and she sits down, and the most significant feature which will be observed is a vacant, silly smile. There is difficulty in getting her to start to do any work, and when she does anything one would notice that her movements are languid and listless. There is a great want of initiative, but there is no hindrance of will to action, only there is the want of interest, everything is done in such a dull, listless manner. Another feature about our patient which is noteworthy is the loss of interest in her surroundings. She does not care where she is put or who looks after her. She has no emotions. She expresses no desire, has no hopes and no fears.

Now what is the diagnosis in such a patient? We have seen her excitement, which is only temporary, her recklessness and her restlessness, but these features have little to do with the diagnosis. To consider our patient. Her ability to understand what is said to her is unimpaired, but she only answers in monosyllables. Again, there is the great want of emotion, or, as it has been put by Kraepelin, a want of the strong feelings of the impressions of life. The diagnosis is dementia præcox.

The features of such a case are: the want of feeling of the impressions of life as seen in the want of the emotions. Her lack of interest in her surroundings with ability to understand and remember. Again, the vacant, silly smile and the grimacing are common, as is also the great want of initiative.

The five cases which I have ventured to describe all show varying features, and each of them is worth consideration. One might take exception to classifying katatonia and dementia præcox separately, as katatonic symptoms are common enough in dementia præcox, but my intention was to describe katatonic excitement separately, and its significant features will justify a special description.

CASE 6.—Alongside of these five cases, and for comparison I shall illustrate the special features of a married woman, aged 32 years, who exhibits great mental exaltation and can be called a true case of mania, properly so called. As soon as one enters the ward the following picture may be seen. She is very noisy and excited. She is walking about the ward; is attracted by the least thing, will pick up anything, remark upon it, and throw it away at once. Perhaps she is induced to sit down, but the moment you turn your back she is up again, attracted by something else. Now she will seize a chair, swing it round and sit down on it, to get up again immediately and go through some other movement. All this time she is talking, but one could not follow the purport of her talk as she changes so often from one thing to another.

She is very fond of dress, and perchance in her wandering round the ward she sees herself in a mirror and she will stand for a minute and admire herself. Her own image has attracted her attention. I once saw her steal a nurse's cuffs, put them on, and sit down as "my lady" quite quiet for about a minute. You speak to her, ask her name, and she will give a correct answer, but she answers so much more, and at once gets away from one subject to another—speaks and does just whatever comes to her mind. You cannot fix her attention on one subject; she cannot be led into any connected conversation, digresses immediately, and then jumps up and moves round the ward as previously described. She is very merry, she laughs throughout her talk, and when out for her walks goes round singing all sorts

of songs, and will sing during the whole time out. Our patient's merriment may very soon change to angry irritation. She becomes very abusive and, as the impulse moves her, will attack any one, and it requires considerable restraint to prevent her doing damage.

What are the significant features of our patient? The most prominent is the divertibility. Some accidental attraction at once arrests her attention, but this is immediately thrown out and some new attraction is forced into consciousness, to be at once departed from. This divertibility is shown equally in mood—merriment to anger; in thought—changing ideas; and in action—her continued changing of position and movements. The patient has not the ability to prevent herself being ruled in thought, mood, and action by the influences of the moment. Next one would note the "flight of ideas." Her thoughts are to no purpose. The train of thought is broken at once by one idea being driven out by another. Again we would note the impulsiveness, in the fact that she will attack anyone. Here we note the same thing: there is no check on the transposition of impulses of the will into action. We would also note the deficient attention. We cannot retain our patient's attention on any subject. The rapid change of the sensations which are forced into consciousness, and each in turn receiving attention, makes it impossible for her to concentrate her mind on any subject.

The whole condition may be summed up thus:—There is no check on the number of ideas which force themselves into consciousness; no check on the sensations received, and each in turn may show itself in mood, action, or speech.

Looking at all those cases, what have we? There are certain features different in them all. First take attention. Case 1 can attend and can comprehend what is said to him to a certain extent, but is soon taken up with his hallucinations of sight. Case 2 can be aroused to attention, but is more confused than Case 1, and soon mentions his delusions of grandeur. Case 3 understands what is said to her, can attend, but will not let you see she does attend, except in the fact that she is negative. Case 4 is stupefied and cannot attend. Case 5 can attend, but she has no interest in what is said to her; she is languid and listless, and would rather not be troubled. Case 6 cannot attend on account of the divertibility; the rapid change of the sensations forced into consciousness and then put into action.

All our cases showed excitement, but all have showed some points of distinction. It would only be taking up space were I to add a note about each, as to which had delusions, hallucinations, or as to the condition of the memory, &c. Enough will be got in the short commentary at the end of each case for an accurate diagnosis. My paper is only clinical, but it may serve a useful purpose if it stimulates a proper investigation into all cases of "Mania."

Lochgilphead.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

HYSTERECTOMY FOLLOWED BY DOUBLE PHLEBITIS.

BY H. MACNAUGHTON-JONES, M.D. R.U.I., F.R.C.S. IREL. & EDIN.,
PRESIDENT OF THE OBSTETRICAL AND GYNÆCOLOGICAL SECTION OF THE ROYAL SOCIETY OF MEDICINE.

THE patient, aged 48 years, a nullipara, had suffered for some years from severe hæmorrhages, for which she had been curetted a few years previously. At the time of operation for tumour of the uterus she was greatly emaciated and extremely anæmic, and altogether in a most unfavourable condition for operation. The tumour was delivered with great difficulty, being firmly wedged in the pelvic cavity. It was a multinucleated myoma, one mass of isolated nodules from cervix to fundus. On the fifth day after operation proctoclysis was commenced, and as there was some distension of the abdomen the wound was opened and a suprapubic drain inserted. Exploration revealed nothing, and only some serous fluid escaped. The proctoclysis was continued on and off for five days, but the suprapubic opening was not closed for ten days. The first symptoms of phlebitis appeared in the left femoral region on the thirteenth day after operation, and the swelling extended to the entire limb. It had returned to its normal size by the twenty-fifth day. On the thirtieth day the right thigh commenced to swell, and it followed the same course as the left, becoming the more swollen of the two. The swelling subsided completely in about ten days, and from that time there were no untoward symptoms. The patient has since done well.

This is the only instance of phlebitis in both legs as a post-operative complication that I have been confronted with. The important lesson to be learnt from the case—and one that is often overlooked—is the increased risk run from grave anæmia, the result of bleeding from fibroids, and also the unfavourable conditions consequent upon this complication which increase the operative mortality. Whatever be the precise physiological cause or causes, there is no doubt that the condition of the blood in such cases tends to thrombosis; also the possible effect of traumatism in the forcible delivery of these tightly wedged pelvic tumours has to be remembered.

As generally occurs, the left leg was the one first affected, and it was rather remarkable that the attack in the right did not begin until the thirtieth day after operation. In Kelly's "Operative Gynæcology" (1898 edition) it is stated that out of some 1100 operations he had had phlebitis in both legs in only one instance, and in his last classical work on medical gynæcology, written with Noble, the authors state that out of 7130 women operated upon thrombosis occurred in 48. Of these, 727 had fibroid tumours, and 19 of the 48 cases resulted from operations on fibroid, a relation regarding the greater risk of thrombosis from fibroids which is in accord with the experience of other surgeons.

The therapeutic points of interest in the case were the good results following the proctoclysis with suprapubic drainage, as recommended by Dr. J. B. Murphy, and the benefit obtained on two occasions when the bowel was obstinate from subcutaneous injections of infundibulin—"pituitary extract." It may also be interesting to note that in this, as in other cases in which I have had to deal with extreme anæmia, the patient was kept on "carnine," in the present instance for 17 days, in addition to other nourishment.

Harley-street, W.

NOTE ON A CASE OF PANCREATIC CYST IN A CHILD AGED 14 MONTHS.

BY D. I. CONNOLLY, M.B., CH.B. VICT.,
ASSISTANT RESIDENT MEDICAL OFFICER, CRUMPSALL WORKHOUSE, MANCHESTER; LATE ASSISTANT HOUSE SURGEON, STAFFORDSHIRE GENERAL INFIRMARY, STAFFORD; LATE HOUSE SURGEON, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN, MANCHESTER.

THE patient was admitted into the Staffordshire General Infirmary on Jan. 29th, 1910. The history, as given by the mother, was as follows. The child had been breast-fed up to about the age of 10 months, when she was weaned. She had not had a day's illness up to three or four days before admission to hospital. The mother then noticed that the child became listless and refused food, also that diarrhœa set in. At the same time the little one developed difficulty in swallowing, apparently having a "sore-throat." The mother became alarmed at the child's condition, because, as she said, "she was always so lively and full of play," and brought her to hospital.

On admission the child looked fairly well-nourished, but wore an anxious expression, and was quite listless. The tongue was furred, the papillæ were prominent, and there was some injection of the fauces. Nothing was to be made out in the chest. On examining the abdomen, it was found to be distended and tympanitic all over. Palpation elicited a feeling of resistance in the right hypochondrium. The movements of the intestine were audible on auscultation. The pulse was rapid, reaching from 160 to 180 per minute, and the temperature at first was about 99° F. In the nervous system there was nothing of note except the general languor previously noticed. It was not found practicable to obtain a specimen of urine. There were no signs of rickets or any deformity.

Treatment consisted of milk only. The diarrhœa not improving, albumin water was substituted. Of drugs, grey

powder in half-grain doses twice a day was given; also a mixture containing 2½ grains of bicarbonate of sodium and ½ minim of tincture of nux vomica was administered every four hours. Later brandy in 10-minim doses every four hours was given. The fauces were irrigated regularly with weak boric acid lotion.

On the second day after admission slight jaundice supervened, the stools became clayey and more frequent, and curds were also prominent. The abdomen became more distended, and now a definite rounded tumour could plainly be made out in the right hypochondrium. It had a convex border directed downwards. The mass was felt to extend across the middle line and to reach into the left hypochondrium. It was dull on percussion. A peculiar fact was noticed, that on firm pressure over the swelling an evacuation of the bowels ensued. On the fourth day the jaundice deepened considerably, diarrhœa was still frequent, and the stools continued quite clayey. The temperature rose to 102·8° on the evening of the second day and continued to vary between 100° and 104°, but mostly above 102°, until the afternoon of the ninth day after admission, when it fell to 99°, and on the morning of Feb. 8th (the tenth day) to 97°, when the patient died. The pulse kept somewhere about 160 to 170 beats per minute, till the eighth day, when it dropped by degrees from 176 to 114 per minute.

Post-mortem examination.—The thoracic cavity was considerably encroached upon owing to the pushing upwards of the diaphragm by the liver. There was no fluid in the chest; all its viscera were healthy. On opening the abdomen the liver was found to be displaced, so that its visceral surface looked more forwards than downwards and its lower edge reached posteriorly almost to the crest of the ilium. It was bile-stained, but otherwise healthy. The gall-bladder was enlarged and contained bile. A large fluctuant mass was found pushing forwards the posterior peritoneum and intestines. The duodenum and first part of the jejunum were adherent to the surface of the tumour and spread over it. The whole of the abdominal viscera were removed *en bloc*. The kidneys were normal except that they were bile-stained. The spleen was unaffected. There was an accessory spleen present. The fluctuant mass was found to be a cyst arising from the head of the pancreas, the main portion of pancreatic tissue having disappeared; part of the tail of the organ, however, still remained. What appeared to be soft glands were found along the abdominal aorta; they resembled also small masses of fat somewhat similar to appendices epiploicæ. The tumour, by its mechanical effects, had caused a complete obstruction to the bile flow; hence the symptoms and cause of death. The cyst contents were not examined. There was no examination of the head. The pelvic viscera were normal, as was also the stomach.

I sent a report of the case to Professor J. Lorrain Smith, who very kindly looked up the literature bearing on the subject, and he said that, so far as he had gone, the case seemed to be unique. The specimen is now in the museum of the Pathological Department of the Victoria University, Manchester. I have no comments to make on the case, being content with recording the facts and leaving explanations and theories of causation to more capable hands.

I am indebted to Dr. C. Reid, senior physician of the Staffordshire General Infirmary, for leave to publish the notes of this case, and I also wish to thank Professor Lorrain Smith for the trouble he took in looking up the literature of the subject.

Manchester.

THE LIVERPOOL EYE AND EAR INFIRMARY: THREATENED CLOSURE OF WARDS THROUGH LACK OF FUNDS.—At the ninety-first annual meeting of the trustees of the Liverpool Eye and Ear Infirmary, held on March 13th in the town hall, the Lord Mayor presiding, there were expressions of profound regret at the unsatisfactory state of the finances of the hospital. The deficit on the accounts now amounts to £3246. The committee stated that the only way it could see of making a sufficient reduction in expenditure was to close the upper wards (30 beds), which would be a great calamity. The Lord Mayor, the Archdeacon of Liverpool, and other speakers deplored the paucity of support, and voiced fervent hopes that the public, who receive such benefits from the infirmary, would adequately contribute to its funds. Another wail lay in the paucity of the attendance at the meeting.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SURGICAL SECTION.

Myositis Ossificans.—Femoral Hernia.—Congenital Pouch of Bladder.

A MEETING of this section was held on March 14th, Mr. RICKMAN J. GODLEE, the President, being in the chair.

The three following papers were read and are published in full in this issue:—The PRESIDENT: Myositis Ossificans Traumatica (p. 791); Mr. G. H. MAKINS: Traumatic Myositis Ossificans (p. 792); and Mr. A. A. BOWLBY: The Formation of Bone in Periosteum Separated by Injury (p. 793).

Mr. C. H. FAGGE read a paper on the Inguinal Method of Radical Cure for Femoral Hernia. He said that he would like to make a few practical remarks about the details of Lotheissen's operation, which appeared to him to be of first importance. Owing to the presence of the cord it was undoubtedly more difficult in the male than in the female, but it was relatively of greater value in strangulated than in other cases owing to the ease with which the imprisoned coils could be manipulated in full view and carefully examined before they were returned. Gimbernat's ligament might when necessary be divided. Outside the sac from above an abnormal obturator artery could be seen and avoided. The sac could usually be dragged bodily upwards out of the femoral canal after it had been opened and its contents returned; in freeing that the deep epigastric vein had to be defined and avoided; it was not until his thirty-second case that he injured that vessel and was compelled to ligature it after some annoying hæmorrhage. After ligaturing the sac and allowing its stump to retract upwards the divided edges of the parietal abdominal fasciæ (transversalis and iliac) might with advantage be brought together over the sac by interrupted catgut sutures. Three or four interrupted sutures were necessary for the approximation of the conjoint tendon and Cooper's ligament after free definition of the latter; in passing those sutures lay the chief difficulty of the operation. The outermost must be passed through the Cooper's ligament just behind the inner border of the femoral vein, which required full and careful refraction; it would be found easier to pass those mattress sutures first through Cooper's ligament and to tie them above rather than below, a half-circle cutting needle being used, while the peritoneum and bladder were protected with flat retractors. He had been accustomed to use iodised catgut throughout. He had not seen any evidence of compression of the femoral vein by those sutures, but one of his cases, otherwise successful, had developed a saphena varix.

Mr. JAMES BERRY read a paper on a Large Congenital Diverticulum of the Bladder treated by Resection. The patient was a labourer, aged 21 years, who was admitted to the Royal Free Hospital on Nov. 18th, 1904, complaining of recent hæmaturia. When examined under an anæsthetic a large, rounded, soft swelling was found in the right iliac fossa and extending thence up into the right loin. Although he had passed urine shortly before the examination, nevertheless as much as 37 oz. of urine were withdrawn by catheter. On March 5th, 1905, a long median incision was made through the lower abdominal wall and the bladder freely exposed. The bladder consisted of two nearly equal parts, each about as large as a normal bladder. The lower and anterior one occupied most of the true pelvis, and had a tough fibrous wall in which very little muscular tissue could be seen. The posterior sac had a very thick muscular wall, and lay above and behind the other. The anterior sac was then freely opened, and 41 oz. of fluid were withdrawn from it. A more or less triangular portion of the wall was left *in situ*, and all the rest of the sac was cut away. The patient made an excellent and uneventful recovery. He now informed Mr. Berry that he was in excellent health and had no urinary trouble at all. In the day-time he micturated every three or four hours, and he very rarely had to get up at night to do so. Mr. Berry ventured to record that case on account of its rarity, as he had not been able to find a precisely similar

one recorded elsewhere. Mr. John G. Pardoe had kindly drawn his (Mr. Berry's) attention to an excellent paper by Dr. Hugh H. Young of Baltimore[1] on the Operative Treatment of Vesical Diverticula, with report of four cases. A bibliography of the literature was given, together with a short account of the cases of excision of a diverticulum by Péan, Czerny, Riedel, Pagenstecher, and von Eiselsberg, besides his own three cases in which that method of treatment was adopted. The chief points of interest in the present case seemed to be the large size of the cyst; its congenital nature, shown by the existence of urinary symptoms in early childhood; the absence of any acquired obstruction in the urethra which would have led to the formation of such a pouch, and the opening of the left ureter into the pouch far away from the bladder; the dilatation of the left ureter, which was not due to any stricture at its vesical orifice, since a probe could be (and was) readily passed up into the ureter. It was apparently due to the absence of muscular fibre in the wall of the pouch into which the ureter opened, thus permitting the intravesical pressure during micturition to be transmitted directly to the ureter. The operation itself presented no difficulty of any importance.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION.

Exhibition of Specimens.—Primary Abdominal Pregnancy in a Rabbit.—Hæmatocolpos.—Origin of Follicle Cells of Ovary.

A MEETING of this section was held on March 2nd, Dr. H. MACNAUGHTON-JONES, the President, being in the chair.

Dr. EARDLEY L. HOLLAND exhibited a Sarcoma of the Uterus.

Dr. R. D. MAXWELL showed an Ovarian Cyst containing thyroid gland tissue.

The PRESIDENT exhibited a specimen consisting of a large retort-shaped Hydrosalpinx and a Cystic Ovary, with a peritoneal cyst behind the mesosalpinx. On removal the latter was found to be filled with a bright orange-coloured fluid; the ovarian cyst was a blood cyst, and the dilated fimbriated end of the hydrosalpinx was adherent to the ovary. He also showed a Multilobular Myoma of the Uterus removed from a patient aged 45 years. The operation was followed by attacks of phlebitis in both legs, the first on the thirteenth day after operation in the left femoral region, and that in the right leg on the thirtieth day after operation. The value of infundibulin (pituitary extract) was shown in this case when there was difficulty in moving the bowels. It was the only case of phlebitis of both legs which he had seen, and it exemplified the well-known risk of this complication in connexion with bleeding fibroids. The patient made a good recovery.—Dr. AMAND ROUTH, Mr. ALBAN DORAN, and Dr. A. E. GILES discussed the case, which is separately reported in this issue of THE LANCET.

Dr. W. BLAIR BELL read a short communication on Primary Abdominal Pregnancy in a Rabbit, in which it was pointed out that while secondary abdominal pregnancy, following rupture of the cornua, was fairly common in hares and rabbits, primary abdominal implantation had not previously been described. Owing to the frequency with which tubal or ovarian abortion or cornual rupture with secondary abdominal implantation had occurred without macroscopical evidence being obtained, it was insisted that no case could be accepted unless serial sections of the ovaries, tubes (and, in animals, of the uterine cornua) were made, however great the other evidence might be. In the case recorded in this paper of primary abdominal pregnancy in a rabbit, four full-term fœtuses were found in a tumour attached to the gastro-colic omentum. The specimen was shown, together with skiagrams of the specimen and of the young rabbits at birth. Serial sections had been made of the ovaries, tubes, and uterine cornua, and no trace of the laceration could be found, nor was there any evidence of a recent intra-uterine pregnancy. Seven corpora lutea of the same age, and considered to correspond with the date of the abdominal pregnancy, were found, and shown in photomicrographs. The number of corpora lutea rather indicated coincidental intra-uterine pregnancy, for it was usual to find that the number of corpora lutea corresponded with the number of fœtuses, but, of course, after several months no histological evidence would be obtainable of changes in the uterus due to a previous pregnancy.—Dr. AMAND ROUTH cited cases by Dr. Pembrey and Dr. Bellingham Smith, and Mr. Bland-Sutton's opinion that there was no evidence of the occurrence of tubal pregnancy in the lower animals (except in one doubtful case in a baboon). He believed that all the recorded cases were subsequent to rupture of the uterus.

Dr. BLAIR BELL also read a paper on the Nature of the Fluid contained in a Hæmatocolpos. The histories of two cases of hæmatocolpos in girls, aged respectively 18 and 16 years, were recorded. In both there was a large fluctuating tumour reaching above the umbilicus, on the top of which was riding the undistended uterus. A third case, under the care of Dr. T. W. Eden, was also mentioned. A bacteriological examination of the chocolate-coloured fluid collected from the second and third cases showed it to be sterile. A full chemical examination of the fluid from the second and third cases gave the following results:—(*a*) It contained a very large proportion of mucin; (*b*) the pigment is mostly hæmoglobin, with a little methæmoglobin; (*c*) there is 90 per cent. of water and 10 per cent. of solids; (*d*) the nitrogen present amounts to 1·43 per cent., which is equivalent to 9 per cent. protein; (*e*) lactic acid is present in large quantities; (*f*) the calcium content is double that of normal blood; and (*g*) neither fibrin ferment nor fibrinogen could be detected.

Dr. A. LOUISE MCILROY read a paper on the Origin of the Follicle Cells of the Ovary, which was illustrated by many lantern slides and photographs.

MEDICAL SOCIETY OF LONDON.

Influence of Diabetes and Gout on Tuberculous Infections.—Influence of Syphilis on Tuberculous Infections.

A MEETING of this society was held on March 13th, Mr. CHARTERS J. SYMONDS, the President, being in the chair.

Dr. NATHAN RAW read a paper on the Influence of Diabetes and Gout on the Tuberculous Infections of the Human Body. He said that diabetes and gout were both disorders of nutrition, each presenting symptoms of great dissimilarity. In diabetes the power of resisting microbic invasion was greatly diminished, whilst in gout it was decidedly increased. Physicians had long observed the intimate association of diabetes with tuberculosis and the tendency for pulmonary lesions of a tuberculous nature to supervene in the course of the disease. It was also well known that those persons who were disposed to acute attacks of gout were peculiarly immune to tuberculosis. His observations had been made as the result of a careful study of 62 cases of diabetes mellitus occurring in hospital and elsewhere during the last 12 years, including post-mortem examination of 27 cases. Of the total of 62 cases of diabetes, no fewer than 37, or 59 per cent., were affected with tuberculosis, chiefly the pulmonary form, only two patients having abdominal tubercle. A point of great interest was that on first examination only 11 patients had symptoms of pulmonary tuberculosis on admission to hospital (as far as could be detected); the remaining 26 patients developed the disease during the progress of the diabetes. A question of absorbing interest was, When did those diabetic patients receive the tuberculous infection? In the 26 patients who developed pulmonary lesions in hospital the infection could not have occurred there, as they were quite apart from such patients. He had long held the view that the great majority of cases of pulmonary and other forms of tuberculosis received the infection in the early years of life, and that the tubercle became encapsuled and quiescent for a varying length of time, only to come into activity about the period of adolescence. It might be that those persons who were predisposed to diabetes might be unusually susceptible to infection by tubercle bacilli, and that the increasing debility associated with diabetes favoured the rapid progress of a tuberculous infection. It was most rare for any case of pulmonary tuberculosis to develop diabetes. During the last 20 years he had had under his hospital care over 4000 cases of tuberculosis, and he could not recall a single instance (in whom the urine was sugar-free on admission) which developed diabetes mellitus. Gout was another mysterious disease of which they knew little. There could be little

[1] Johns Hopkins Hospital Reports, 1906, vol. xiii., p. 401.

doubt that changes in the blood were of the highest importance in determining an attack, and in his opinion the peculiar constitution of the blood plasma induced in some unknown way a high resistance to ordinary bacterial infection. It was unusual to meet with gout amongst the working classes, but exceptions did occur, and during the last 12 years he had had under his observation 27 patients who were admitted in the acute stages of the disease, and 24 had been seen in private patients. In not a single one of those patients had he been able to detect any trace of tuberculosis. He had, therefore, come to regard the gouty diathesis as antagonistic to tuberculosis. With a view to establishing the accuracy of the clinical experiment it occurred to him to observe the results of growing pure cultures of tubercle bacilli on media which had previously been mixed with blood from cases of diabetes and gout. After four weeks' incubation no growth was observed, and even after eight weeks there was only to be seen a slight irregular growth on the surface of the medium, without any distinct clumps of bacilli. A control experiment was made when the growth was luxurious and well marked in 14 days. Those examinations were repeated exactly with blood from another diabetic case and another gouty one, with precisely similar results. His conclusions from that work were: Diabetes predisposed to the development of tuberculosis; gout had an inhibitory effect on the growth of tubercle bacilli; the blood plasma was the determining factor in the growth or inhibition of bacterial infections within the human body.—A discussion followed in which Dr. F. DE HAVILLAND HALL and Dr. F. PARKES WEBER took part.

Mr. D'ARCY POWER read a paper on the Influence of Syphilis on Tuberculous Infections of the Human Body. He said there was a general belief that the tuberculous bore syphilis badly, but a little reflection showed that such a statement was too general to be of use, for the two diseases might occur under widely different conditions. Mr. Power divided his subject into:—A. Inherited syphilis: (1) a child with heredo-syphilis might acquire tubercle; (2) an adult with heredo-syphilis might become tuberculous. B. Acquired syphilis: (1) an adult with active tubercle might acquire syphilis; (2) an adult with acquired syphilis might become tuberculous late in life. That classification showed that syphilis and tubercle might be active at the same time and in the same individual; they might overlap or they might be widely separated in point of time. Each condition had its own prognosis and the results of the various combinations could not be summed up in a single sentence. The whole question was in need of elucidation, and he thought that valuable results would be obtained if medical men in general practice would record any observations which came under their personal notice. Formerly it was difficult to distinguish between syphilis and tubercle, but the advance of pathology now afforded scientific data in place of a clinical diagnosis. Mr. Power then read the notes of cases in which syphilis seemed to have prepared the way for tuberculous inflammation of the tongue and for tuberculous inflammation of the ankle. He also gave details of cases where acquired syphilis had acted upon tuberculous lesions, making them more active, and where tubercle attacking tissues late in life had been less destructive than usual owing to previous syphilitic changes. Mr. Power concluded his paper with the following propositions: 1. Children with heredo-syphilis often showed signs of tuberculous disease of the joints in the form of "gummatous" synovitis which did not improve beyond a certain point under treatment by antisyphilitic remedies. 2. In young adults born of syphilitic parents an attack of pneumonia or other infective disease might be followed by signs of syphilitic inflammation (syphilis hereditaria tarda). The syphilitic lesions thus manifested might become tuberculous and the patient might die from tuberculosis. 3. Adults who acquired syphilis whilst they were suffering from tubercle were liable to have any pre-existing tuberculous inflammations rendered much more active. It was to those persons that the generalisation applied "The tuberculous bore syphilis badly." 4. Old persons who acquired syphilis many years previously might be attacked by senile tuberculosis. The tuberculous inflammation ran a more chronic course than usual in such persons and there was less liability to suppuration.

After Dr. PARKES WEBER, Dr. DE HAVILLAND HALL, Mr. V. W. LOW, and Dr. RAW had spoken, Mr. D'ARCY POWER replied.

OPHTHALMOLOGICAL SOCIETY.

Three Cases of Optic Nerve Tumours.—A Morgagnian Cataract.—Granuloma of the Retina.—Exhibition of Cases and Specimens.

A MEETING of this society was held on March 9th, Mr. G. A. BERRY, the President, being in the chair.

Dr. A. HILL GRIFFITH read a paper entitled "Three Cases of Optic Nerve Tumour," illustrated with a number of photographs and specimens. He said that two were specimens of intra-dural and one of extra-dural growth. In the first case there had been protrusion of the right eye for seven and a half years, and when seen the patient had marked forward displacement of the eyeball. Movements were good, except downwards. There was a lobulated swelling between the globe and the inferior edge of the orbit. Distinct resistance was encountered. Vision was J 16. The disc was pale and atrophic. At the operation the eyelids and entire contents of the orbit were removed by a circular incision, the eyebrow being preserved. The cavity was lightly packed with gauze. A month after the operation five Thiersch grafts from the patient's thigh were transplanted into the orbit. When seen recently the orbital cavity was well lined with skin, except at one spot. There was no discharge. Professor Lorrain Smith's report was that there were widely dilated lymphatics and lymph spaces in a matrix of vascular fibrous tissue. The larger spaces were lined with endothelium. In the second case there was marked displacement of the eyeball forwards, which had been noticed a few weeks. There was no sign of inflammation. The pupil only reacted consensually with that of the other eye. There was marked optic neuritis in the affected eye. There were no hæmorrhages. Dr. Griffith operated 11 days after seeing the patient and removed the entire contents of the orbit in one mass, the eyelids being first reflected towards the nose by means of a horseshoe incision, the flap being afterwards replaced and sutured. The tumour consisted of small round cells, the tissue was richly supplied with thin-walled blood-vessels, and there were many widely dilated lymph spaces. Especially around the lymph spaces the nuclei were massed together, and they varied in size and chromatic contents. The third case had had protrusion of the left eye for some years, and latterly it had increased. The eye movements were good. There was recent optic neuritis, with blurring of the edge of the disc all round. There were no hæmorrhages. Shortly before the operation the vision had fallen to 6/12, and there was well-marked proptosis. No growth could be felt. The external rectus tendon and outer canthus were freely divided, and then the growth could easily be felt, obviously surrounding the optic nerve. The entire orbital contents were removed. The growth consisted of cylindrical masses made up of large epithelium-like cells, with a round central nucleus. Dr. Griffith strongly recommended the procedure he adopted in these cases. It was better to remove the lids entirely by a circular incision.—The paper was discussed by the PRESIDENT, Mr. E. TREACHER COLLINS, Mr. J. B. LAWFORD, Mr. J. H. PARSONS, Mr. G. COATS, Mr. FRANK G. THOMAS, Mr. J. B. WHARTON, Mr. J. JAMESON EVANS, Mr. R. W. DOYNE, Mr. M. S. MAYOU, Mr. S. JOHNSON TAYLOR, Mr. H. B GRIMSDALE, Dr. T. HARRISON BUTLER, and Dr. GRIFFITH replied.

Mr. JOHNSON TAYLOR read a paper on a Morgagnian Cataract. The patient was an elderly spinster who had had the condition in the left eye 25 years, without any discoverable adequate cause. The eye, doubtless from long disuse, had become amblyopic, and, though the direct pupillary light reflex was quite brisk and the tension normal, the projection was very defective. During the operation, which was a difficult one, owing to the sunken state of the eye, the small size of the cornea, and the narrowness of the palpebral aperture, no trace of a nucleus was discovered, the whole lens was found transformed into a milky fluid with the exception of some inspissated material lining the capsule, which was removed by repeated introduction of iris forceps; after a subsequent needling the vision was 5/12 (most) and J 1. Two points were insisted upon: (*a*) That operation should not be refused just because the projection was bad, if the direct pupillary light reflex was brisk and the tension normal, especially in a long-standing case; (*b*) that prevention was better than cure, and that, as a general rule, one-eyed cataracts should be operated on before getting over-ripe

(except in persons of advanced age and those the subjects of serious disease), although the other lens was perfectly clear; the advantages of such procedure must counterbalance the disadvantages and possible risks.

Mr. FRANK THOMAS and Mr. GEORGE COATS communicated a paper on a Peculiar Form of Granuloma of the Retina. The patient, a lad of 18 years, became ill in March, 1908, with influenza. Afterwards he developed pain in the hypogastrium, and suffered from retention of urine and pyrexia. He had severe pain in the left brow, and became drowsy and irritable. Routine examination of the eyes showed, in the region of the left papilla, an area resembling a greatly enlarged disc, and consisting of a central flat structureless portion, of the colour of the fundus elsewhere, surrounded by a ring of swollen nerve fibres. The retinal vessels emerged from the inner edge of this ring. The right fundus was normal. Subsequently a discharge from the left ear developed, and he recovered. Nearly two years later he came to hospital again. The eye was blind and glaucomatous, the anterior chamber very shallow, and the retina detached. Enucleation was therefore performed. Pathologically an oval yellow mass, measuring 4 mm. by 2·5 mm., was found in the stalk of the detached retina close to the papilla. The growth was purely retinal, and consisted of densely crowded cells, mostly slightly elongated. There were very little stroma and no organisation within the mass, but on its vitreous surface a small quantity of old organised tissue was found. The iris stroma was atrophic, and many small new-formed vessels were present on its anterior surface. The corneo-iridic angle was occluded. Looking to the histological characters alone the growth resembled a sarcoma more than a granuloma, but this diagnosis seemed improbable in view of its small size and slight amount of growth in two years. Moreover, primary sarcoma of the retina was unknown. An inflammatory origin was therefore probable, perhaps associated with the illness from which he had suffered — an illness accompanied by fever and a septic focus in the ear. On the other hand, had there been a septic metastasis in the retina one would have expected, after two years, a fully organised cicatricial mass, not a richly cellular tissue; moreover, there seemed to be evidence of slow progression during these two years. The histological characters did not accord well with an origin by retinal or sub-retinal hæmorrhage.

Mr. GRIMSDALE showed a case of Crystalline Opacities in the Cornea; two patients in the same family.

Mr. W. H. BRAILEY exhibited a Fixation Speculum.

Mr. F. A. JULER brought forward microscopical sections of a Neoplasm involving the Iris, from a case shown on Nov. 10th last.

Mr. CHARLES WRAY showed a Sarcoma-like Growth in the Anterior Chamber with a 16 years' history.—Mr. LAWFORD, discussing Mr. Wray's case, said there seemed to have been something visible in the anterior chamber for 15 or 16 years, but the patient said that it had increased considerably during the last two years. He thought the most likely diagnosis was that there had been a mole or innocent tumour of the iris, which had now become sarcomatous. If it were sarcoma there could be only one line of treatment—namely, removal. He would be inclined to attempt to remove the growth, and a piece of iris with it, and to examine with the microscope, basing the subsequent procedure on what the microscope revealed. He did not counsel leaving it alone.

Mr. ELMORE W. BREWERTON showed a case of Cirsoid Aneurysm.

Mr. H. L. EASON exhibited a case of Relapsing Marginal Keratitis.

HARVEIAN SOCIETY OF LONDON.

Discussion on Colitis.

A MEETING of this society was held on March 9th, Mr. J ERNEST LANE, the President, being in the chair.

Dr. SIDNEY PHILLIPS, in opening a discussion on Colitis, said that so-called membranous colitis included inflammatory or true colitis and non-inflammatory cases incorrectly called colitis; he thought the latter was frequently due to spasm of the intestine. The Plombières treatment was sometimes useful. He thought that simple colitis was sometimes an early stage of ulcerative colitis, and that there was no precise distinction between them; sometimes the whole of the colon was denuded of mucous membrane. Perforation sometimes occurred, and occasionally death was deferred for days after this accident. Among symptoms were acute paroxysms of abdominal pain and also leucocytosis; neither of these occurred in typhoid fever. Hiccough was a common symptom. Prognosis was doubtful; where mucous colitis was excluded the mortality was high. As to etiology, he did not think that lead poisoning was a cause, but was convinced that acute colitis might result from articles of food or from water, and quoted cases. He thought that asylum dysentery was true dysentery, but in London colitis rarely gave bacteriological evidence of identity with amœbic dysentery. As to treatment, drugs were of little use, though calomel and opium were of value. The worst cases might recover, and appendicostomy was sometimes useful. Vaccine treatment was of use, but in very acute cases the prospects of success were small.

Mr. D'ARCY POWER said that chronic colitis might be due to simple irritation, protozoal infection, or bacterial infection, and that two classes were recognisable: (1) in which the cause could be found; and (2) in which there was a toxæmia from ulceration of unknown cause. Thorough examination was required for diagnosis, the bowel being washed out and examination made by the finger and the sigmoidoscope. Gross causes thus recognised were: (1) scybala in sacculi of the intestine; (2) polypi or cancer; and (3) certain bacterial infections. Ulcerative colitis, however, occurred apart from these causes, the lesions being chronic, destructive and extensive, and producing toxæmia. He described a case of a man who suffered from chronic constipation which became worse, and blood appeared in the stools; fissures and ulcers appeared about the anus, and the patient lost appetite and vigour. The pulse became rapid and the temperature high and irregular; the mouth was septic and he suffered from swelling of various joints. Blood and mucus persisted in the motions, which were very irregular, sometimes being passed at short intervals. After simple treatment for a long period, appendicostomy was performed and the bowel washed out daily through the appendix, with local improvement, though the patient remained very ill. A vaccine prepared from the pus was employed. The patient continued to improve, but convalescence was extremely slow, and slight relapses were frequent. The diagnosis of this condition was easy in late stages, but in early stages it gave little indication of the severity of the disease, as the patients did not look as ill as they were. Mild remedies should only be employed for a short time, after which recourse should be had to vaccine therapy and if necessary to surgery. Appendicostomy did not cure the condition, but helped to keep the bowel clean and prevent absorption of toxic products. It led to material improvement in the condition even in advanced cases, though relapses—generally temporary—might occur. For irrigation, many drugs caused irritation; he preferred carbonate of bismuth, permanganate of potassium or allmatein, and in later stages perchloride of mercury, zinc sulphate, or nitrate of silver; chlorodyne was a valuable anodyne.

Dr. W. HALE WHITE said he thought the main cause for membranous colitis was constipation. Ulcerative colitis might be secondary to disease of the appendix. Pain was an important aid to diagnosis. Acute membranous or ulcerative colitis might occur in Bright's disease. Shiga's bacillus was rarely found, but the B. coli was very frequent. The distinction between primary and secondary colitis was important. It might be secondary to infective disease, irritation, injury, or malignant disease. Primary colitis was of better prognosis. The bowel should be kept clean and empty. In mild cases castor oil should be used with rectal irrigation with plain water if necessary; failing this appendicostomy should be performed. The operation was rarely necessary in membranous, but usually so in ulcerative, colitis. Vaccine therapy was a useful addition.

Dr. JOHN MATTHEWS said that he was usually called upon to identify the organism involved in colitis and not to make a clinical diagnosis. Sometimes he had obtained organisms direct from the ulcers through a speculum which were pure B. pyocyaneus. Inoculation with this organism led to rapid improvement. Another case met with similar success with Friedländer's bacillus. As a rule he made a thin emulsion with the fæces and planted this upon neutral-red lactose-agar

plates from which discrete colonies of different organisms could be isolated. Diagnosis was made by estimation of the patient's opsonic index to the various organisms. He maintained strongly that infecting organisms do not appear in the urine, and he found that catheter specimens in these cases were almost invariably sterile. As a rule he used vaccines of coliform bacilli and occasionally a streptococcus vaccine. He gave statistics of the organisms which he had found in such cases and of his results. Out of 16 cases under his own charge he had had 10 complete recoveries.

Dr. C. W. BUCKLEY regarded mucous colitis as a catarrh of the mucous membrane due to retained fæces or bacterial toxins, and thought that associated neurasthenia or arthritis was due to the same cause. He described the Plombières treatment and he ascribed its effects to removal of toxins. He discussed the value of the fluids used at various spas and emphasised the importance of selecting a spa according to the requirements of the patient, and the necessity for skilled attendance.

Mr. L. A. BIDWELL said that colitis should generally be treated by medical methods and that surgical treatment was comparatively rarely needed, but he wished to speak on operative methods. He agreed that colitis sometimes depended on appendicitis and found that the removal of a diseased appendix often led to cure, but not always. If the appendix were healthy appendicostomy should be performed, but if diseased it should be removed. A form of colitis with single deep ulcers producing adhesions was a distinct type. In these perforation often followed, and since they showed a tendency to recur he advocated ileo-sigmoidostomy. This operation was only to be performed when the lower half of the sigmoid was healthy as determined by the sigmoidoscope. The ileum should be divided between the anastomosis and the cæcum. Troublesome diarrhœa did not follow the operation.

Dr. W. H. WILLCOX also spoke.

LIVERPOOL MEDICAL INSTITUTION.

Exhibition of Specimens.—Sleeping Sickness.

A MEETING of this society was held on March 2nd, Dr. T. R. BRADSHAW, the President, being in the chair.

Mr. W. THELWALL THOMAS and Dr. STOPFORD TAYLOR showed: 1. A large Intracanicular Fibroma of the Breast (weight 7 lb.) containing cyst removed from a patient, aged 44 years; the fibrous tissue was undergoing myxomatous degeneration and in one place had fungated through the skin. 2. A large round and oval-celled Periosteal Sarcoma of the Scapula of a female, aged 20 years; an interscapulo-thoracic amputation was performed. 3. A large Cancellous Exostosis from the lesser trochanter of the femur in a patient who had 14 others, small in size, distributed at the epiphyseal ends of many of the long bones.

Mr. D. DOUGLAS CRAWFORD showed: 1. A Right Kidney with large branching calculus removed from a woman, aged 65 years, producing no symptoms except occasional pus in the urine. 2. Volvulus of the Lower End of the Small Intestine, which had lodged in the pelvis, producing symptoms of appendicitis in a woman, aged 31 years; it was excised with excellent result. 3. With Dr. MOORE ALEXANDER: Embryoma, probably Malignant Degeneration of the remains of Branchial Cleft, from a man, aged 21 years, which had grown rapidly recently. Cysts were present. Microscopically there were carcinomatous masses and tubes lined by ciliated epithelium.

Dr. K. W. MONSARRAT showed a Sacral Dermoid.

Dr. ERNEST E. GLYNN showed: 1. A specimen of Cellulitis and Suppurative Thrombosis of the Orbit due to Actinomyces; pus was found in the sella turcica. The source of infection was not discovered. 2. Multilobular Cirrhosis of the Liver, with multiple, small, old and recent red thrombi in the capillaries and smaller branches of the hepatic and portal veins. The cause of the thrombosis was not discovered. 3. Enormous Dilatation of the Bladder without Obstruction from Urethral Stricture or Enlarged Prostate; the dilatation was proved microscopically to result from chronic interstitial myositis following chronic cystitis.

Dr. R. J. M. BUCHANAN demonstrated a Method for the Examination of Red Blood Corpuscles by means of Edington's solution in combination with stains. The blood was mixed in a Thoma-Zeiss pipette, with a solution, then placed on a slide and allowed to dry. The erythrocytes by this method did not undergo any distortion from spreading.

Dr. BUCHANAN read a note on the appearance of the Erythrocytes from a case of Recurrent Attacks resembling Henoch's Purpura for 13 years. When examined by the method just described 90 per cent. of the erythrocytes from the peripheral circulation contained one or more peculiar basic staining bodies not unlike parasites. The blood in the urine contained identical bodies.

Dr. J. O. WAKELIN BARRATT exhibited the Technique of making Models of Cells undergoing Mitosis. This demonstration was illustrated by models, sections under the microscope from which the models were constructed, and by lantern slides. Reference was also made to the bearing which the forms of mitoses exhibited had upon pathological processes, particularly upon cancer and proliferating surface epithelium.

Dr. J. W. W. STEPHENS read a paper on Recent Researches in Sleeping Sickness, dealing with the following points: 1. Were there other species than trypanosoma gambiense which caused sleeping sickness in man? He pointed out that some of the trypanosomes had a nucleus at the posterior end. This trypanosome was also far more pathogenic for animals than T. gambiense. It remained to be seen whether this trypanosome was really different from gambiense. 2. The mode of transmission of T. gambiense. Up to recently it was believed that the transmission was mechanical, but recent work had shown that the fly was not infective until 20 or 30 days after biting an infected person. 3. What was the reservoir of sleeping sickness? Probably antelope and cattle and some of the domestic animals must be regarded as potential reservoirs. 4. Was sleeping sickness curable? In the early stages it was practically certain that some cases had been definitely cured by arsenic or antimony used in various ways, but if the trypanosome gained access to the subarachnoid space it was doubtful whether a cure was possible.—Dr. K. A. GROSSMANN asked whether any explanation could be given of the increased virulence of sleeping sickness in Africa?—Dr. STEPHENS, in reply, stated that sleeping sickness had been known for about 100 years, and that where a virgin population existed the disease spread with terrible rapidity, but that in other areas where the disease was still endemic it appeared not to spread. The explanation of the difference was not clear.

Exhibition of Cases —A Rare Arthropathy.—Septic Puerperal Thrombo-phlebitis of the Pelvic Veins.

A MEETING of this society was held on March 9th, Dr. T. R. BRADSHAW, the President, being in the chair.

Mr. C. THURSTAN HOLLAND showed a series of lantern slides illustrating the Modern Short Exposure in X Ray Work: kidney stones taken with an ordinary coil and mercury break with exposure of less than one second; chests and stomachs taken with the Snook apparatus in a fraction of a second exposure; chests taken with the single flash 1/100th second Dessauer apparatus. It was interesting to note that the first successful radiograph taken in Liverpool in January, 1896, by Sir Oliver Lodge, was a hand with a bullet in it and that the exposure was one and three quarter hours.

Mr. C. G. LEE showed an infant aged 4 months. The patient had a Coloboma of the Iris in the Right Eye and a Left Microphthalmic Eye, placed far back in the orbit, with a large cystic swelling extending into the tissues of the lower lid. The skin of the lower lid was much stretched and of a bluish colour and semi-translucent. Mr. Lee said that whilst coloboma of the iris was, perhaps, the most common ocular developmental defect, microphthalmia was, with cystic extension, one of the rarer forms of this affection.

Dr. C. J. MACALISTER read a note on a Rare Arthropathy, and showed photographs of two patients suffering from it. The one case was a woman advanced in life, the other being a child aged 6 years. The characteristic features in each were that the knees were dislocated, both the ankles were ankylosed, and there were partial dislocations of both wrists, of the elbows, and shoulders; the neck was bent forward and fixed in the case of the woman; the small joints of the hands and feet were similarly affected. The disease in each case began somewhat acutely with fever and swelling of the affected joints. The initial attack was followed after periods of remission by other exacerbations, and the dislocation of the joints took place in each case rather suddenly.

The change was in its nature an osteo-arthritis, with rarefaction of the bony ends and disappearance of the cartilages. In the case of the child there was a condition of the skin resembling a scleroderma, and the skin over each knee resembled a thin cicatrix.—Dr. W. B. WARRINGTON pointed out that a sclerosing process affected in the more usual cases the skin only, as in the diffuse form of scleroderma, but that sometimes the muscles were also affected and in rare cases the bones as well. He alluded to an instance of the latter condition which had also been seen by Dr. Macalister, Mr. Robert Jones, and Dr. F. H. Barendt.

Dr. W. BLAIR BELL read a paper on Septic Puerperal Thrombo-phlebitis of the Pelvic Veins. In the first place the pathology of the condition was discussed, next the frequency of occurrence and prognosis. It was pointed out that according to the figures of Lenhartz, Trendelenburg, and others septic thrombo-phlebitis was the only gross lesion found in one-half of the cases that died from puerperal sepsis; in other words, at least one woman in every thousand delivered died from this condition. The question of operation was based upon the principle accepted in tying the internal jugular vein in septic infection of the ear to prevent general pyæmia. At present the mortality of the operation was extremely high because it had nearly always been resorted to as a last expedient. With earlier operation the mortality would be reduced. The diagnosis was the chief difficulty. The following points should be considered: (1) The late onset—10 to 20 days after parturition and following a moderate degree of morbidity; (2) rapid rise in temperature and pulse-rate generally with rigors; (3) mobility of the uterus; (4) absence of pain; and (5) dark colouration of the cervix from venous congestion. Two cases upon which Dr. Blair Bell had operated were described: the first, an unsuccessful one, had already been recorded in full, the second had recently been the subject of the operation and was now quite well. Dr. Blair Bell pointed out that the operation was a great scientific advance on the expectant treatment, which had resulted in a general mortality for all cases of at least 65 per cent. With early diagnosis and operation the mortality should be reduced to about 5 per cent.—Dr. ERNEST E. GLYNN considered that general pathological considerations justified the operation.—Dr. ARTHUR J. WALLACE spoke in favourable though guarded terms of the procedure, whilst Professor H. BRIGGS held that familiarity with figures and statements concerning the past—peripatetic—methods of treatment in cases of puerperal fever brought out the fundamental difficulty in separating the local from the general infections. He himself was a firm advocate of early local treatment, but believed that on the evidence now available the term septic thrombo-phlebitis was misleading from confusion between the changes in the thrombi themselves and in the surrounding tissues.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Inhibition of Growth of Inoculable Tumours in Rats.—The Human Pituitary Gland.—Nutrient Media for Naked-eye Recognition of B. Diphtheriæ.—Exhibition of Specimens.

A MEETING of this society was held on March 3rd, Dr. J. B. HELLIER being in the chair.

Dr. A. S. F. GRÜNBAUM and Dr. H. G. GRÜNBAUM made a communication on Inhibition of Growth of Inoculable Tumours in Rats, showing, among other things, that antivenom serum caused almost invariably regression of growths which were within a certain size limit at the time of its injection. An apparent antagonism between tumour growth and immunisation to cobra venom was also described.

Dr. A. S. F. GRÜNBAUM and Dr. H. G. GRÜNBAUM gave an account of the Human Pituitary Gland based on the examination of over 50 specimens. They showed that the colloid material did enter the blood vessels, and drew attention to the frequent occurrence of multinuclear areas in cases of malignant disease.

Dr. MYER COPLANS showed specimens of new Culture Media as a means for the readier recognition of B. diphtheriæ in subcultures from swabs of suspicious nose and throat cases. The media were made as follows: To sheep's blood serum to which there had already been added 1 per cent. glucose—acid producer—and 1 per cent. of ½ per cent. aqueous solution of neutral-red—indicator—(this preliminary combination being denoted as "S")—there were added, either singly or in combination, one or more of the following salts: (*a*) potassium sulphocyanate, 1 per cent.; (*b*) potassium ferrocyanide, 2½ per cent.; (*c*) potassium ferricyanide, 1 per cent.; (*d*) boric acid, about 1 per cent. The medium on coagulation and inspissation should be faint primrose-yellow in colour, the reaction being faintly alkaline. The sheep-serum was best pipetted off from recently drawn clotted blood and then allowed to stand in a refrigerator for three days in order to eliminate red corpuscles by sedimentation, only the supernatant liquid being finally utilised. With combination S. (*a*) B. diphtheriæ grew red with a bluish-pink tint diffusing through the medium in all directions; B. Hoffmann grew yellow with yellowish diffusion; some varieties of staphylococci simulated B. diphtheriæ on culture but on further incubation the tint did not intensify as with B. diphtheriæ and should be readily distinguished; B. subtilis grew brownish; B. megatherium and torulæ grew as faint pinkish-white colonies which were raised; streptococci grew apparently colourless. Combinations S. (*a*) (*b*), S. (*b*), and S. (*d*) in particular showed up to advantage the reddening and bluish-pink diffusion brought about by B. diphtheriæ as compared with various staphylococci. Confirmation as to the diagnostic value of the combination S. (*a*) had been furnished by Dr. C. Rankin, senior assistant medical officer to the Leeds City Fever Hospitals, who had used the medium in more than a thousand cases as a test for the absence of B. diphtheriæ from the nose and throat in patients already convalescent from the disease as a preliminary to their discharge from hospital. Suitable control measures had been carried out all along, and as a result of this experience it was possible to adopt the dictum, "no red colouration, no B. diphtheriæ," seeing that there had not as yet been a single exception to the rule. The test was by means of the naked eye and the labour of microscopic examination was greatly reduced since it was possible after a short experience to distinguish readily, at a distance, the various tints produced, either from the front or back of the changed medium. In case of doubt further incubation intensified the tints and facilitated the naked-eye diagnosis. These results were part of a research to determine the effect of salts of saliva on the growth of the mouth and intestinal organisms in nutrient media.

Dr. COPLANS further showed slides—(1) Splenic Puncture (Kala-Azar); (2) Splenic Puncture, Kala-Azar Infantum (Infective Splenic Fever in Children, Mediterranean); and (3) Brain Section and Blood from a case of Malarial Coma.

Dr. HELLIER showed: 1. A Fœtus stillborn in the seventh month, showing complete absence of bladder, ureters, and kidneys. A well-formed uterus with normal appendages was present. The hands and feet were webbed. 2. An Intramural Abdominal Myoma removed from the Abdominal Wall during Pregnancy. The myoma had grown with great rapidity and showed some signs of necrobiosis. There were no ill effects from the operation.

Mr. H. LITTLEWOOD and Dr. M. J. STEWART showed specimen and section from a case of Adeno-carcinoma of the Sigmoid Flexure associated with Tuberculous Disease of the Right Fallopian Tube.

Mr. B. G. A. MOYNIHAN and Dr. STEWART showed the Viscera from a patient in whom complete gastrectomy for carcinoma was performed an May 31st, 1907. Death occurred on Feb. 1st, 1911, being preceded by grave anæmia for some months, between the onset of which and the operation the patient had remained well.

Dr. STEWART showed a specimen from a case of Epithelioma of the Pharynx; death occurred from impaction of a large piece of meat.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.

Sudden Serious Peritoneal Lesions.

A MEETING of this society was held on March 3rd, Mr. J. M. ACKLAND, the President, being in the chair.

Dr. WILLIAM GORDON read a paper on the Diagnosis of Sudden Serious Peritoneal Lesions. He divided the conditions simulating sudden serious peritoneal lesions into: (1) intrathoracic diseases (pneumonia, pleurisy, pericarditis); (2) the four colics (hepatic, renal, pancreatic, intestinal); (3) nervous cases (locomotor ataxy, hysteria);

(4) acute irritant poisoning; (5) cholera and typhoid; (6) uræmia; (7) mucous colitis; (8) acute gastric dilatation; and (9) acute intestinal obstruction by gall-stones. He classified the "sudden serious" peritoneal lesions as follows: 1. Ruptured ectopic gestation. 2. Acute intestinal obstructions: intussusception, strangulation by bands, volvulus, internal hernia, strangulation through apertures. 3. Perforations of the alimentary canal: gastric ulcer or cancer, duodenal, typhoid, tubercular, appendical, of the colon. 4. Rupture of other structures except abscesses: gall-bladder, common bile-duct, ovarian cyst, bladder, hydatid cyst. 5. Rupture of abscesses: appendical, pyosalpinx, lymph gland abscess, acute phlegmonous cholecystitis, liver abscess, empyema, renal abscess, pericardial abscess, subdiaphragmatic abscess, suppurating ovarian cyst. 6. Acute torsions (not intestinal): ovarian cyst, subperitoneal fibroid, dilated Fallopian tube, wandering spleen, floating kidney, undescended testis, omentum. 7. Acute pancreatitis and pancreatic hæmorrhage. 8. Acute peritonitis not due to the foregoing (tuberculous, gonococcal, pneumococcal). 9. Sudden vascular lesions: rupture of aneurysms, portal thrombosis, embolism of superior mesenteric artery. Dr. Gordon considered the term "abdominal catastrophe" as one embracing at the same time too much and too little. Peritonism, again, was a term purely symptomatological, and not wholly satisfactory at that, whilst the expression "acute abdomen" was obviously only an ingenious makeshift. He ventured to submit that in practically all the conditions recalled, when they spoke of abdominal catastrophes, the common factor which determined the clinical course was the peritoneal lesion. He further suggested that this lesion was characterised by symptoms of sudden onset, and by consequences too grave to associate with merely trifling injuries. He hoped therefore that by a grouping together of these lesions their knowledge of them might become more precise, and some advance be made in the matter of diagnosis. In considering the intrathoracic diseases which might simulate peritoneal lesions Dr. Gordon drew special attention to pericarditis and the motionless abdomen in respiration which might accompany it. He also mentioned as a valuable sign the absence of, or at all events reduction in, the plantar and pharyngeal reflexes in hysterical cases. Here also a leucocyte count would be of value. The difficulties met with in the diagnosis of acute dilatation of the stomach simulating obstruction and of obstruction by gall-stone were referred to at some length. Turning to the lesions which formed the main subject of his paper Dr. Gordon said that he merely intended rapidly to review them and to suggest points for discussion. The administration of opium would obscure almost all the diagnostic features on which he was about to lay stress. He considered that ruptured ectopic gestation was more often missed from oversight than from ignorance, and urged the marked and increasing pallor as a prominent sign. Fortunately, conditions with which it might be confounded called for the same treatment. In acute intestinal obstruction Dr. Gordon raised the question as to whether the period of repose, so often seen in perforative cases, was not absent. He found himself in a vast field when confronted with the perforations and felt obliged to limit himself to a few points. He was of opinion that upward extension of gastric resonance was more important than loss of liver dulness in the mammary line, often late in its appearance and often misleading. He put as a question to the surgeons present whether, as a point of contrast, shock did not develop rapidly after a perforation, whereas in strangulation the condition was of gradual onset. Dealing with rupture of abscesses and their diagnosis Dr. Gordon mentioned the ease with which most of these conditions could be confused with appendicitis; for example, ruptured pyosalpinx or phlegmonous cholecystitis. Pancreatic lesions might often simulate obstruction, but points to be noted were absence of fæcal vomiting and an epigastric swelling. Jaundice with no sign of hepatic disease would be suggestive. The stools should be carefully observed. Where doubt existed as to the diagnosis between gall-bladder or pancreatic tumour Dr. Gordon suggested the knee-elbow position, when a gall-bladder would come to the palpating hand and a pancreatic recede from it. Vascular lesions could rarely be diagnosed except by operation. Dr. Gordon finally asked for the opinion of the society as to (1) whether diagnosis would not be intensified by a closer study of abdominal pain in all its aspects; (2) importance of time of onset of collapse in diagnosis; (3) blood examinations as an aid to diagnosis; (4) the value of more frequent examinations under anæsthetics; and (5) how far a study of the vomited matter helped them in distinguishing lesions.

Mr. F. W. LANGRIDGE described what he considered to be the mechanism concerned in abdominal movements, and alluded to the viscero-motor reflex. It did not follow that abolition of this reflex meant acute peritonitis.

Dr. R. V. SOLLY did not consider that the taking of one blood film was of much help to a diagnosis. Unless a series were examined the results might be most misleading.

Mr. R. PICHARD quoted a case on which he had operated and where the signs of perforation were practically absent. He brought forward this case as an example of an undisturbed temperature, pulse, respiration ratio in perforation, and as going to prove that the negative aspect of symptoms was far less reliable than the positive.

Dr. J. RAGLAN THOMAS recalled a case resembling in all outward particulars a ruptured ectopic gestation, but which at operation proved to be rupture of a pelvic abscess.

Mr. ADAMSON remarked on the frequency with which relatively unimportant symptoms prior to the onset of an acute lesion mislead one. He instanced the case of a girl who had been under his care for symptoms suggestive of gastric ulcer, and to whom he was urgently summoned. Taken with her previous history her condition suggested acute perforation, but on opening the abdomen that cavity was found to be full of blood originating from the rupture of a broad ligament vessel. Mr. Adamson also held as equally misleading the variability of pain and the difficulty which lay in its interpretation.

Dr. GORDON replied.

EDINBURGH OBSTETRICAL SOCIETY.

Toxæmia of Pregnancy.—Gastro-mesenteric Ileus as Post-operative Complication in Abdominal Cases.—Double Tuberculous Pyosalpinx.

A MEETING of this society was held on March 8th, Dr. F. W. N. HAULTAIN, the President, being in the chair.

Dr. R. W. JOHNSTONE read notes on Some Experiments on the Anaphylactic Theory of the Toxæmia of Pregnancy. After describing the condition of anaphylaxis and instancing some of its manifestations, he referred to the fact that Anderson and Rosenau in 1908 first suggested a possible connexion between anaphylaxis and the toxæmia of pregnancy. The points of resemblance were chiefly the occurrence of convulsions during life, and after death the presence of multiple hæmorrhages throughout the body. The theory was that some alien protein might pass from the placenta to the mother and supersensitise her, and that a second transference of the same substance after a suitable interval might account for the onset of convulsions and other symptoms. Anderson and Rosenau obtained anaphylactic symptoms in a guinea-pig by using an extract of guinea-pig's placenta, which, however, was allowed to autolyse before use. Dr. Johnstone in his experiments used extracts of fresh human placenta and also extracts of guinea-pig and rabbit placentæ. He obtained no positive results with eclamptic human placenta. No results followed the use in pregnant guinea-pigs or rabbits of extract or emulsion of placenta from animals of the same species. By the use of extract of normal human placenta he obtained anaphylaxis in 8 out of 12 rabbits. This he regarded as definitely due to placenta proteins. The fact, however, that he was unable to confirm the results of Anderson and Rosenau in the use of homologous placental extracts appeared to negative any connexion between anaphylaxis and the toxæmia of pregnancy.—The PRESIDENT, Dr. A. H. F. BARBOUR, Dr. J. W. BALLANTYNE, Dr. H. O. NICHOLSON, and Dr. JAMES RITCHIE discussed the paper.

Mr. E. W. SCOTT CARMICHAEL read a paper on Gastro-mesenteric Ileus as a Post-operative Complication in Abdominal Cases. He instanced three cases. He had operated on the first for suspension of a retroverted uterus. The patient began to vomit on the third day and continuously till the seventh. She was extremely ill and seemed to be suffering from delayed chloroform poisoning. The nurse turned her on to her left side and somewhat on her face, when she vomited from two to three pints of fluid, and was never sick

again, with complete recovery. Mr. Carmichael was called to see a patient, in the absence of the surgeon, who had been operated on for hydatid cyst of the liver. Sickness had begun on the day after the operation and had continued uninterruptedly for a week, when general peritonitis was suspected. She was emaciated, dyspnœic, and in great distress. The abdomen was distended, but especially in the epigastrium and left half of the abdomen as far as the hypogastrium, but though tender the abdomen was soft, and splashing could be detected. A stomach-tube was passed and five pints of straw-coloured fluid were drawn off. This gave great relief, but in a few hours the vomiting had returned and the patient was very ill. As she was very weak, and rather than expose her to the risk of her atonic stomach filling again, he decided to perform a gastrostomy under ether, removing at the same time 4½ pints of fluid. The stomach was found to be a flaccid bag completely atonic, extending into and filling the pelvis and left iliac fossa. The dilatation extended into the duodenum as far as the duodenojejunal flexure, the rest of the small intestine being completely collapsed. After emptying the stomach it contracted visibly up to almost its normal dimensions. The patient died suddenly five hours after operation from exhaustion. A post-mortem examination revealed the stomach and duodenum almost normal in size and no obvious cause to explain the condition. A third case had also dilatation of the stomach with splashing and succussion, with continuous vomiting for three days. The condition was immediately relieved on emptying the stomach with a stomach-tube. Two days after there was vomiting of one pint of bilious fluid without effort, and then it ceased entirely. The chief etiological factor in all these cases seemed to be some condition which produced paralysis with hypersecretion. A similar condition had been observed to complicate eclampsia and puerperal septicæmia. It was important to recognise the condition early, and it should be suspected in all cases of chloroform sickness persisting after the second day. The fluid vomited was very irritating to the lips and cheeks. If recognised early, practically all could be cured by passing the stomach-tube. As a last resort, where the condition has led to the starvation of the patient, gastrostomy, jejunostomy, or gastro-enterostomy has been performed to drain the stomach.—Dr. BARBOUR, Dr. JOHNSTONE, Dr. NICHOLSON, and the PRESIDENT made remarks on the paper.

Dr. BARBOUR and Dr. B. P. WATSON gave a demonstration of specimens of the Cystic Ovary, showing the different varieties and a lantern demonstration of the microscopical characters. The frequency with which the condition is associated with salpingitis was pointed out. This probably depended on secondary infection of the ovary from the tube, resulting in a sclerosis of the surface which prevents the rupture of the follicles. It is wrong to class these cystic ovaries among ovarian tumours, as there is no new growth, the cysts being simple retention cysts directly derived from the Graafian follicle.

Dr. BARBOUR and Dr. WATSON also described and gave a lantern demonstration on three cases of Double Tuberculous Pyosalpinx. In one the tube was so large as to reach the level of the umbilicus, filling up the whole hypogastric region. Lantern slides were shown to illustrate the pathology and mode of spread of the tuberculous process. The picture was the same in all. In the less dilated parts of the tubes there were extensive tuberculous deposits in the mucous membrane, which was greatly thickened and had the neighbouring projections fused together. In this mucous membrane there was a very marked proliferation of the epithelium, which was arranged in gland-like spaces and in solid masses, giving an appearance like carcinoma. Where the tuberculous process was advancing the epithelium was proliferating, but in the regions where many tuberculous deposits were present it was rapidly degenerating. In the more dilated parts of the tubes at the outer ends the mucous membrane was almost entirely destroyed by tuberculous ulceration, and in the very large tube a process of natural cure had occurred. At the undilated uterine ends the mucosa was healthy, but tubercle nodules were present in the muscle wall. From a study of the specimens Dr. BARBOUR and Dr. WATSON conclude that the infection is probably a direct one of the mucous membrane through the fimbriated end from the peritoneal cavity.—The PRESIDENT, Mr. SCOTT CARMICHAEL, and Dr. JAMES YOUNG commented on the paper.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Appendicular Dyspepsia and Treatment of Diffuse Peritonitis.—Appendicectomy.

A MEETING of this section was held on March 3rd, Mr. R. H. WOODS, the President, being in the chair.

Mr. R. CHARLES B. MAUNSELL, in a paper on Appendicular Dyspepsia and on the Treatment of Diffuse Peritonitis, pointed out that the title appendicular dyspepsia was applied to a group of symptoms which had not had public attention drawn to it until Mr. Moynihan published his paper on the subject last year. Mr. Maunsell read the histories of a few examples, and stated that, in his opinion, there were two forms of the grouping of symptoms. In the first form the symptoms were mainly gastric, in the second mainly intestinal. A warning note was sounded with regard to other possible abdominal causes of reflex gastric disturbance, and special attention was drawn to the fact that the demonstration of chronic appendicular disease did not eliminate the possible presence of organic gastric disease. The concluding portion of Mr. Maunsell's paper consisted of a strong condemnation of flushing with saline solution in cases of peritonitis following perforation of the appendix, and advocating removal of the appendix and the insertion of "cigarette" drains into the pelvis and kidney pouches, which method of treatment Mr. Maunsell and others had found uniformly successful even in most advanced and apparently hopeless cases of peritonitis.

Dr. W. S. HAUGHTON read a paper on Appendicectomy, with Special Reference to the Treatment of Adhesions. He recommended that in all cases of operation on the appendix during the "cold" stage a search should be made for adhesions, the result of previous attacks of acute inflammation. There would be found in many cases kinks in the intestine due to bands which should be divided. He had found in all cases in which he examined for it a thin membrane spread over the cæcum and ascending colon, rendered visible only by the fine network of blood-vessels which ramify in it. The division of this always caused the cæcum to bulge forward, showing that it had previously been bound down by this membrane. He advocated crushing the base of the appendix before removing it. The crushed part should be then cut through and invaginated beneath a purse-string suture.

Mr. MAUNSELL said he would be inclined to crush the stump close to the clamp, ligature with silk and top sew. The method advocated by Dr. Haughton, he said, sometimes led to hæmorrhage from the bowels.

Dr. H. STOKES mentioned a case of appendicular dyspepsia with symptoms suggesting duodenal ulcer. Subsequently pain was referable to the appendix, which was removed. It was very diseased, while the duodenum seemed normal, but the dyspepsia remained. He thought adhesions in the chronic stage should be divided.

Dr. W. G. HARVEY said with regard to acute fulminating appendicitis that there were usually many abscesses, and unless the appendix was removed and all infected cavities were drained, the patient went from bad to worse. With regard to appendicular dyspepsia, he thought somewhat similar symptoms might occur in floating kidney, gall-stones, or pelvic trouble. Where the appendix lay behind the cæcum the symptoms produced simulated those of acute biliary obstruction.

Mr. R. A. STONEY said there was a condition which explained the recurrence of pain when the appendix was removed, and that was the dilatation and abnormal mobility of the cæcum. There was a stasis of abnormal contents in the cæcum. The opening from the appendix into the cæcum was dilated, which resulted in the passage of the intestinal contents into the appendix, and a chronic appendicitis was set up. These cases were supposed to be due to adhesions. When a ligature was applied to the stump of the appendix there was danger of locking up a certain amount of sepsis between the ligature and the purse-string suture. Pus might form and burst into the peritoneal cavity. He always ligatured the appendix with catgut instead of silk, and used silk for the purse-string suture. A distinct hæmorrhage might occur from the vessels of the appendix where

it was crushed and not ligatured, which hæmorrhage escaped into the cæcum.

Mr. L. G. GUNN, Mr. A. J. BLAYNEY, and Sir C. BALL also spoke.

OXFORD MEDICAL SOCIETY.—A meeting of this society was held on March 10th, Mr. R. H. Anglin Whitelocke, the President, being in the chair.—Dr. W. A. P. Waters showed a case of Mitral Stenosis in a young man, aged 21 years, who had twice had chorea at an early age. Subjective heart symptoms were first noticed at 14 years. The heart was very large, with a marked retraction at the apex. The remarkable feature was an antero-posterior curvature of the spine, which had been becoming much more marked lately. The case was shown in order to elicit opinions whether the spinal and heart conditions were in any way related.—Dr. E. Mallam mentioned a patient with lateral curvature of the spine in whom he had watched the development of mitral stenosis. —Dr. A. G. Gibson mentioned the views of certain French writers that there existed a close relation between thoracic deformity and enlargement of the heart.—Mr. A. P. Dodds-Parker showed a case of Tertiary Syphilis which he had recently treated by the intravenous injection of salvarsan. The patient had been previously treated with mercury and potassium iodide with very partial success, but since the injection (three weeks previously) the lesions of the frontal bone had completely healed and a subcutaneous gumma near the angle of the jaw had aborted. The patient had had no inconvenience from the injection.—Mr. Dodds-Parker described the details of the intravenous and intramuscular methods of injection and demonstrated the apparatus.—Mr. E. C. Foster read the history of a case of Pyelitis following Pregnancy in a woman aged 30 years, the onset appearing two months after the birth of the child. She recovered but had several other attacks, three occurring two days before the onset of menstruation. Mr. Foster thought them due to retained products following pregnancy. Curetting was not done as the patient made fairly rapid recoveries, and was now in good health.—Mr. H. E Counsell related the case of a postman, aged 22 years, who had laryngitis and sore-throat. Nothing more than an ordinary cold was suspected, and the patient improved a little on staying indoors. Six days later he had great difficulty in breathing and appeared moribund. He recovered, but the same day had another attack and died. There had been no laryngeal obstruction necessitating tracheotomy. A culture of the throat showed the presence of streptococcus. Subsequent questioning of his landlady showed that the patient had suffered recently from what appeared to be peripheral neuritis in the legs, that he had been in the habit of drinking enormous quantities of fluid, and that he had passed large quantities of urine. Mr. Counsell believed that this case was undoubtedly one of diabetic coma.—Dr. H. T. Gillett related the history of a middle-aged woman who was suddenly attacked with hæmorrhage from the bowel necessitating surgical interference. The greater part of the transverse colon was found to be much thickened and dark red in colour. The transverse meso-colon showed petechial hæmorrhages. As the patient had mitral regurgitation, the intestinal condition was thought to be due to infarct, and a short circuit was performed, but the patient did not recover. On post-mortem examination no evidence of infarct was found. The localisation of the affection to the middle part of the transverse colon was very definite. The mucous membrane and sub-mucous layer of the intestine were necrotic and showed the invasion of organisms from the lumen of the bowel. The muscular layer and peritoneum were in a state of acute inflammation.—Dr. M. C. Hayward related a case of Saccular Aneurysm of the Second Part of the Aorta in a man aged 58 years. The patient had persevered for six weeks in a rigid Tufnell treatment, which was effective in relieving all symptoms, but had left some wasting of the upper arm muscles; these had subsequently recovered their power. Later the patient developed an epithelioma of the palate, for which he was successfully operated upon, and was now in good health.

UNITED SERVICES MEDICAL SOCIETY.—A meeting of this society was held on March 8th at the Royal Army Medical College, Colonel Sir David Bruce being in the chair.—Lieutenant-Colonel P. J. Freyer, I.M.S. (retired), read a paper on the Symptoms and Diagnosis of Stone in the Kidney, Ureter, and Bladder. After detailing the various symptoms present in these conditions, he laid special stress on the value of radiographs of the parts as a precedent to operation; in his opinion it was only in exceptional cases that one would be justified in operating on a suspected case of stone in the kidney or ureter without having the diagnosis confirmed by an X-ray photograph.—Dr. W. Ironside Bruce showed a number of Radiographs from cases of Stone in the Kidney, Ureter, and Bladder. In his remarks he emphasised the necessity for always taking the picture in a standard position.—Colonel H. G. Hathaway, A.M.S., read a paper on Ambulance Transport. After pointing out that there was likely to be a shortage of horses in future campaigns on account of the large growth of motor transport, he gave as his opinion that it would be necessary to provide motor transport for wounded in all cases except at the immediate front, where it would still be necessary to have horse transport on account of the difficulties of getting motor wagons over rough country away from roads. The use of motor transport would have many advantages, not only in the more rapid clearing of the front, but also in the greater comfort to the wounded and quicker attention to their needs in the better adapted hospitals of the rear. He discussed the various types of motor vehicle at present in use, and suggested that the most economical method of use would be to remove the body and replace it by a platform adapted for the carriage of wounded lying down or sitting up. If large users of motor transport in peace-time were subsidised it might be possible to arrange that they should have their chassis built to standard sizes which in war-time would fit bodies kept in mobilisation stores.—Major Crofton Atkins, A.S.C., said that the War Office had, of course, had the matter of motor transport under serious consideration for some time. Probably the best solution of the problem would be the subsidising of cars with a standard chassis; these would be registered and would be available for military purposes in case of mobilisation. It was doubtful if motors could be much used away from roads, but on roads he thought there was no doubt that they would add greatly to the comfort of the wounded as well as facilitate their more rapid removal to the rear.

Reviews and Notices of Books.

Puerperal Infection. By ARNOLD W. W. LEA, M.D., B.S. Lond., B.Sc. Manch., F.R.C.S. Eng., Lecturer in Obstetrics and Gynæcology in the University of Manchester; Surgeon, Northern Hospital for Women; Assistant Surgeon, St. Mary's Hospital, Manchester. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 384. Price 25*s.* net.

THE advances made in the last 20 years in our knowledge of the bacteriology of puerperal infection have been very considerable, but even now we are not in a position to distinguish, at any rate by bacteriological methods, between the various forms which this disease may assume. The importance of this form of infection can hardly be overestimated, since it is still responsible for nearly half the deaths of women occurring in child-bed, and it certainly accounts for a very large number of the cases coming under the care of the gynæcologist.

These facts must be considered sufficient justification for the length of this monograph, extending as it does to some 384 pages. Dr. Arnold Lea has written the book with the intention of presenting what is known of puerperal infection with some degree of scientific precision, and certainly he has attained his object. Our only criticism of the work is that there is a great deal of repetition, and the whole suggests to the reader a collection of isolated essays rather than a single work dealing with the entire subject. If more care had been taken in this respect the contents of the book could have been compressed within a smaller compass with advantage. The repetition which exists is, however, not without its advantages, for the author is enabled thereby to make certain

important statements several times over, and in this way to lay a corresponding amount of stress upon them.

After a short chapter devoted to a historical review, Dr. Lea attempts to define and classify puerperal infections. On the whole he accepts the statement of von Herff that all forms of puerperal infection are due to invasion of wounds by living organisms, and must be regarded as essentially the same whether the organisms lead to intoxication or to general invasion of the blood-stream. After reviewing the mortality and morbidity of puerperal infection, the conclusion is arrived at that the mortality of this disease has been reduced to as little as 0·1 or 0·2 per cent. in lying-in hospitals, but that outside such hospitals it has shown little diminution, while the morbidity even in other hospitals is still between 10 and 20 per cent.

In the section dealing with the bacteria of the genital canal the results of 58 cases investigated by Dr. Sidebotham and the author are given, and it is stated that in 80 per cent. of the cases pyogenic organisms were found in the early days of the puerperium in the interior of the uterus. In view of the fact that in some 90 per cent. of the cases the puerperium ran an uneventful course, it is probable that such organisms exist only in small numbers and possess but little virulence. It has been suggested by Fromme and other observers that the virulence of any streptococci that may be present can be measured to some extent by their hæmolytic power. Although the researches so far carried out show that in cases of severe infection the streptococci present as a rule possess marked hæmolytic power, yet this is by no means a constant sign, since organisms having this same property may be found in cases running a perfectly afebrile course. As Dr. Lea truly remarks, it is not possible to assert therefore that hæmolysis forms an absolute distinction between the saprophytic and slightly virulent organisms and those which are pathogenic. In connexion with the question of auto-infection, he states that, while such infection is extremely rare, yet it may occur, inasmuch as the vulva and lower portions of the vagina frequently contain pathogenic organisms which may ascend into the uterus.

There are two very good chapters dealing with the general pathology and pathological anatomy of puerperal infection in considerable detail. Dr. Lea holds, and in our opinion quite rightly, that in the early stages of puerperal infection it is often impossible to distinguish with certainty between the symptoms due to pure toxæmia and those due to septicæmia, as in both forms of infection they are essentially due to the bacterial toxins. For the sake, no doubt, of completeness, one chapter is devoted to a consideration of the symptoms of puerperal infection as a whole, and another long chapter to a description of the symptoms of the various forms of local infection. This arrangement necessarily leads to a considerable amount of repetition.

The chapters dealing with treatment, both medical and surgical, are distinguished by a judicious conservatism. The operation of curettage is recommended only when retained products cannot be removed effectually by the finger, and when the lochial discharge, after washing out the uterus, still remains abundant and foul-smelling. In considering serum treatment it is pointed out that with the present methods of preparing antibacterial sera a great deal of uncertainty attends their use, while with regard to vaccines the author holds that it is not yet possible to form a final judgment on their value. Posterior colpotomy, whenever sufficient, is favoured rather than abdominal section in cases of peritonitis; and hysterectomy is regarded as useless as a means of preventing death from septicæmia, in the absence of local lesions, in all forms of general peritonitis, and in thrombophlebitic infection. Indeed, the author comes to the same conclusion as most other writers on the matter—viz., that we are far from a solution of the difficulty of treating these cases successfully. We notice throughout the book the not infrequent mistake of spelling "aërobic" with a diphthong.

The book forms an excellent *résumé* of our present knowledge.

Lectures on Biology. By Dr. CURT THESING. Translated from the second edition by W. R. BOELETER. With 6 coloured plates and 74 figures. London: John Bale, Sons, and Danielsson, Limited. 1910. Pp. 334. Price 10*s.* 6*d.* net.

THIS book consists of lectures which were given by Dr Thesing during the winter terms of 1905 to 1907 at the Humboldt Academy and the Urania in Berlin. Their avowed object is to show that it is no longer possible, having regard to the advances of modern research, to find complete satisfaction in being an out-and-out believer in the Darwinian or Lamarckian or any other theory. There are in all nine chapters. The first is entitled "From Thales to Lamarck," Thales being one of the seven wise men who attempted to establish a uniform principle of all phenomena. This original principle he sought in water. Erasmus Darwin is singled out as the first man who clearly enunciated the idea of evolution. The story is very readable, and well illustrated by reference to the evolution, uses, and modifications of limbs in different animals; while the proposition that it is the function which determines the form of all organs is supported by a study of animals of different classes but with the same life habits.

The second lecture deals with the "Phenomena and Conditions of Life." Proceeding from the dictum "All that moves lives," Dr. Thesing discusses motion in and by animals from the amœba upwards, deals with aeronauts and their ascents, deep-sea life, Regnard's researches and those of Bert on high atmospheric pressures; "gutter-fauna," e.g., bear-animalcules, apparent death, "dry-coma," the tenacity of life displayed by the lower organisms in the presence of cold, e.g., the survival of bacteria for seven days when exposed to a temperature of $-190°$ to $-225°$ C., all in turn receive attention. The cataplexy of W. Preyer is discussed, also Kircher's "experimentum mirabile" (1646) on a hen, and similar so-called hypnotic phenomena are introduced under the head of "Psychic Influences." We are told that the larva of corethra, a species of gnat, if placed in alcohol or osmic acid swims placidly about just as if it were in its proper element. Only after several days does this delicate little animal succumb to the effects of the poison.

The next subject is "The Forces of the Organism." At least twice there occurs this curious mistake when referring to Wöhler's synthesis of urea; it is given as "urine" (pp. 51 and 101). The term "fibre ducts" in bone must, we think, be a mistranslation. There is an interesting account of the architecture of bone. The author concludes that there is no need to assume the existence of a mysterious vital force in order to explain the purposeful construction of the bones or any other organs. One of the mysteries, however, will always remain hidden—consciousness, and so we are back at the famous dictum of du Bois Reymond "ignorabimus."

The fourth subject, "Building Stones of the Organic World," deals with cells and cell-life. Then follows an interesting chapter on the "Origin of Life," including the fantastic conceptions of Preyer and the cosmogenic views of the late Lord Kelvin. "The Evolution Theory," "Factors of Evolution," "Conservation of Life," and "Reproduction and Heredity" are pleasantly written sections rather in popular style. By way of illustrating phylogenetic relationships there are introduced hæmolysins, precipitins, and the "biological reaction." Other subjects considered are organic light production, artificial selection, colour adaptation, formative powers of light, symbiosis, transmission of

acquired characters, malarial parasites, mutation and Mendelism; and many other topics are interestingly discoursed on, the discussion including comments on the weakness of Darwin's theory of sexual selection.

The book is very readable and informing. There are some curious printer's errors, a few of which we note. "*Omni rirum*" for *omne*, "Erzengung" for Erzeugung, "scuttle fish" for cuttle-fish, "Remack" for Remak, "Columbia livia" for Columba. Eunuchs are described as having "very pronounced mammals."

Applied Anatomy. By GWILYM G. DAVIS, Associate Professor of Applied Anatomy, University of Pennsylvania, &c. With 630 illustrations. London and Philadelphia: J. B. Lippincott Company. 1910. Pp. 630. Price 24*s.* net.

THIS work is, as the author himself tells us in his preface, "an attractive volume," being well printed and well illustrated. The 630 illustrations are mostly very good; many are original, and many are taken from the well-known work of Professor Piersol. Some exceptions to the general high standard of excellency must, however, be noticed. Figs. 172 and 176 both show a strikingly confusing picture of the great vessels of the neck appearing to pass superficially to the clavicle to reach the thorax; and Fig. 532 can not be named a success. The author has adopted the BNA terminology, but he has not followed it entirely, and it would have been better if he had included the universal nomenclature for the position and direction of the parts of the body, for on p. 177, in one paragraph, the terms "below" and "beneath" are used in different and very confusing senses—"below" apparently signifying caudal, and "beneath" signifying deep.

Professor Davis has dealt with the subject of applied anatomy in a wide sense, and he has embarked on a discussion of all that is best in anatomy. As a result he has produced a very useful book, which, if not embodying much that is new, contains a clear and accurate account of what is generally accepted. In places the information is in some need of being modernised, and the description of the testicle and its descent should certainly be made to conform more to modern knowledge. The author makes repeated appeals to embryology for the explanation of various pathological conditions, but embryology cannot be considered as one of the strong points of the work, and it would seem a pity to introduce the subject when such assertions as that the malformations of the bladder are due to the failure of union of "the two lateral halves of the bladder" are made.

While we have perused this book with much interest a very disturbing train of thought has been brought about in us by attempting to follow to their logical conclusions some of the very curious speculations of the author. Take as samples two sentences, at random, the one from p. 216 and the other from p. 222. "If the forearm were lacking and the hand were attached to the end of the humerus it would still be a very useful appendage, far more so than the stump which is left after the hand has been amputated." And, "If the upper portion of the femur was like the upper end of the humerus, the lower extremity would be continually rolling in and out, making walking or running at least difficult, if not impossible." The attempt to appreciate these speculations has reduced us to a condition of anatomical nightmare that is difficult to shake off. We prefer the reasonings of an older generation of anatomists, and to admire an organ for what it is—the perfect outcome of its functions—rather than to attempt to picture the results of its removal to some other part of the body. Besides this peculiarity of speculation the author has many little tricks of phraseology which are inelegant and it may be noted that "insert" is usually considered to be a transitive verb in English, although the author uses it differently. These peculiarities do not, however, seriously detract from the general utility of the work.

Hydrotherapy. By GUY HINSDALE, A.M., M.D., Secretary of the American Climatological Association, &c. Illustrated. London and Philadelphia: W. B. Saunders Company. 1910. Pp. 406.

IN the introductory part the author deals with the *rationale* of hydrotherapy, and the effects of baths on metabolism and the circulatory and respiratory systems. The various affections in which water can be therapeutically applied are then considered in order, after which detailed instructions are given as to the application of the remedial measures. Then baths and douches are described, and the use of packs, compresses, and douches. Lastly, the administration of mineral waters internally, "crenology," or "crounotherapeutics," is discussed, though briefly.

Dr. Hinsdale alludes to the corroboration by recent authorities, such as Kisch of Marienbad, and Simon Baruch, of the old observations of Robert Pierce of Bath, in 1713, and James Currie, in 1798, that absorption of the fixed constituents of water does not take place through the skin, and therefore that "mineral waters, the analyses of which are quoted with such particular exactitude, are neither more nor less efficacious on that account," when used as baths. The value of the cold bath in pyrexial and hyperpyrexial cases is fully discussed and mention made of the early (and forgotten) pioneers in this method, such as James Currie, the English ship surgeon just alluded to, and Hiram Carson of Pennsylvania. Since its revival by Brand in 1861 it has been widely used, but H. A. Hare has always favoured substitutes for the Brand method since his experiences with typhoid in 1900, and sponging is now preferred to tubbing, unless the temperature rises above 102·5° or 103°F. The author insists that "as the main object of the cold bath in typhoid fever, or any other febrile disease, is *not* the reduction of temperature, ... even in such a serious affection as sunstroke ..... the good effect of the use of cold water ..... is accomplished only by the vigorous stimulation of the nerve centres, inducing an added power to withstand toxæmia." There are, however, many tropical practitioners whose experience leads them to believe that the actual abstraction of heat is the only thing that is effectual, be the explanation what it may. A good account is given of therapeutic measures in cardiac affections, and the Nauheim baths and Schott treatment are well described and illustrated; the utility of bath treatment in insanity is also dwelt on. The third section is devoted to the technical details of the application of heat and cold in every form, hot-air and the electric-light treatment, sand and mud baths being described, as well as the various forms of water treatment.

The last section deals with the internal use of mineral waters—"crenology." It is generally understood that a natural mineral water has a distinctly greater therapeutic power than a water artificially prepared having precisely the same chemical constitution. The author considers that "it is barely possible that the recent discovery of radio-active properties in some of these waters may afford some explanation of these qualities." At Bad Gastein the radio-activity in "milligramme minutes" for 10 litres of gas issuing from the spring is stated as 79·20; the presence of the radium emanation is considered to be the main source of the beneficent quality of these waters. At Neusser's clinic in Vienna a large number of patients suffering from gout, rheumatism, neuritis, and diabetes have been treated with waters from the mines in Joachimsthal, near Prague,

the locality where the greatest quantities of pitchblende and radium salts are found. This water has much greater power than that of Gastein.

A very large amount of practical information is contained in this useful volume, with abundance of illustrations.

LIBRARY TABLE.

Conferences on the Moral Philosophy of Medicine. Prepared by J. W. S. GOULEY, M.D. London and New York: The Rebman Company. Pp. 368. Price 6*s.* net.—This little work is primarily a text-book of medical ethics, and in many ways is a most useful compilation. Dr. Gouley, however, ranges over many subjects ancillary to ethics, and such subjects are necessarily treated in a superficial manner. He imagines an aspirant to the medical profession inquiring of his family physician as to certain "items of information concerning the profession whose ranks he hopes to enter." The family physician, called by Dr. Gouley "the sponsor," thereupon begins by giving the aspirant a short sketch of the history of medicine, including the erroneous statements that "the great colleges of Oxford and Cambridge in England were founded late in the ninth century," and that "the University of Paris was originally started towards the end of the eighth century through the influence of Alcuinus who became one of its first professors." Dr. Gouley is on much firmer ground when he discusses the career of the medical student and lays down rules for his behaviour when acting as interne and during his early days as a physician in practice. One of the most valuable portions of the book is the National System of Medical Morals, adopted in the year 1847 by the American Medical Association, a code of professional morals which is excellent. Among other points with which Dr. Gouley deals is that of the young physician as a writer. His precepts, we must say, are better than his practice. He advises the young physician to avoid fine writing, but on p. 77 of his own book we find the following sentence describing a hospital patient: "..... not being judged fit to retire to bed, fatigued as he was and suffering with some contusions from sundry blows and heavy falls caused by inco-ordinate muscular action due to many free libations of fluids which at first more than gladdened his heart, was ordered to disrobe and be cleansed." But although we cannot praise the manner of the book and have felt compelled to notice erroneous statements, yet the advice which Dr. Gouley gives as to conduct is in general most praiseworthy.

Landmarks and Surface Markings of the Human Body. By L. BATHE RAWLING, M.B., B.C. Cantab., F.R.C.S. Eng., Surgeon with Charge of Out-patients at St. Bartholomew's Hospital. Fourth edition. With 31 illustrations. London: H. K. Lewis. 1911. Pp. 96. Price 5*s.*—Mr. Bathe Rawling is to be congratulated upon the appearance of a new edition of his useful little manual of surface markings. That the issue of a fourth edition was already demanded is better proof of the utility of the book than any comments written by a reviewer. Some years ago Mr. Rawling had the good fortune to appreciate that a need existed for such a book, and he also possessed the ability to write the very book that met the need. Professor Bertram Windle had shown the road that should be followed when he published his "Handbook of Surface Anatomy and Landmarks," and Mr. Rawling has advanced along somewhat similar lines to a stage as near to perfection as it seems possible to go at the present time. The book gives in a short space all the important landmarks and surgical surface markings; it defines them accurately and illustrates them well; and it includes no additional matter such as may always be found in either the text-book of anatomy or the text-book of surgery. The material has been presented in the handiest form, both for revision for examinations and for reference in practice, and it is therefore not surprising that the demands of the student and the practitioner have made a fourth edition necessary so soon.

Nisbet's Medical Directory, 1911. In two parts. Part I., Directory of Medical Practitioners. Part II., The Local Directory. London: James Nisbet and Co., Limited. Pp. 838. Price 7*s.* 6*d.* net.—This handy and inexpensive directory is very useful for general purposes. The names are arranged in one alphabetical series without any local subdivisions; the local directory in its turn naming alphabetically every place in the world where a British registered practitioner resides, with the names of the medical men living there. In some instances that we have tested changes of address that occurred so lately as the middle of December are duly noted here.

Ambulance Examination Questions: Being a Catechism on First Aid to the Injured and Sick. By D. M. MACDONALD, M.D. Aberd., M.R.C.P. Edin. Fourth reprint edition. Bristol: John Wright and Sons, Limited. 1911. Pp. 24. Price 6*d.* net.—The best method of learning is by frequent questioning. In default of a questioner the student should learn to question himself. The difficulty he often finds in attempting to question himself is how to word a question without first thinking of the answer, which is a reversal of the method that should obtain. This collection of questions will help the first-aid student to test himself as an examiner would test him. The necessity for a fourth reprint is a testimony to its usefulness.

Garden Foes. Pp. 336. Price 2*s.* 6*d.* net. *Carnations, Picotees, and Pinks.* Pp. 187. Price 2*s.* 6*d.* net. *Salads and their Cultivation.* Pp. 110. Price 1*s.* By F. W. SANDERS, F.L.S., F.R.H.S. London: W. H. and L. Collingridge.—A beautiful garden appeals to everyone and should engender feelings of peace and repose, but, as those who cultivate fruits or flowers know, beauty of perfection in the garden can only be attained by a ceaseless warfare against many enemies. In "Garden Foes" Mr. Sanders tells us how best to deal with the pests and diseases which are ever ready to spoil or destroy the cultivator's work in the flower, fruit, or vegetable garden and in the greenhouse. Chapters are also devoted to the foes of forest trees. In dealing with the process known as "cyaniding," the author is careful to point out the dangers of sodium cyanide, and the process, useful as it is, should certainly not be used by any but experienced persons. The chapter on "A Few Friends" should prevent those whose knowledge of entomology is small from destroying creatures which are useful allies to the gardener. Under miscellaneous pests the author includes the cat, and his ingenious devices for keeping these animals out of the garden will be appreciated by all who know by experience the damage which the cat can do to a seed-bed or among growing plants. The book is well illustrated, the notes are practical, and there is a good index.——The cultivation and propagation of the genus dianthus are dealt with in "Carnations, Picotees, and Pinks." This is a favourite group of flowers with amateur gardeners, among whom are many medical men, and Mr. Sanders has produced a book which very fully discusses the subject. Cross-breeding receives careful attention, and instructions are given for dealing with insects and other pests which are sometimes a source of trouble to the carnation grower.——The book on "Salads" includes some useful receipts.

UNIVERSITY OF OXFORD.—The electors to the Radcliffe Travelling Fellowship have reported to the Vice-Chancellor that they have elected Mr. E. P. Poulton, B.M., Balliol College, to the Fellowship. Mr. G. B. D. Adams, Christ Church, has taken the degree of D.M.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

PERGENOL.

(THE SACCHARIN CORPORATION, 10, ARTHUR-STREET WEST, LONDON, E.C.)

THIS is an interesting product which brings the use of hydrogen peroxide of definite strength into easy practical application. Pergenol is a molecular combination of sodium perborate and sodium bitartrate. The compound in water immediately yields hydrogen peroxide by the interaction of the two salts. The statement is correct that when one part by weight of pergenol is dissolved in four parts of water a solution of peroxide of hydrogen of B.P. strength is obtained. The B.P. peroxide is required to yield from 18 to 22 volumes of oxygen when treated with permanganate. We found that one part pergenol dissolved in four parts of water gave 19–20 volumes of oxygen. It is evident that pergenol provides a simple way of applying oxygen, and lozenges are made for dissolving slowly in the mouth and tablets for preparing a solution for brushing the teeth or for gargling. It may be noted that as the result of decomposition boric acid appears also with the peroxide of hydrogen, so that there can be no question of the antiseptic as well as disinfectant value of the combination.

VALIDOL.

(WIDENMANN, BROICHER, AND CO., 33, LIME-STREET, LONDON, E.C.)

Validol is an interesting compound of menthol and valerianic acid, which has been known for some time for its valuable sedative properties; it has been used for the same purposes in fact as valerian preparations with, however, certain advantages. More recently it has been found of value in sea-sickness. In this connexion we have read a considerable amount of testimony in its favour, the evidence being furnished in general by ship surgeons. Validol is a clear colourless liquid with a peculiar but not unpleasant odour and mild taste; it is readily administered in a small glass of wine, which aids its favourable effect. In severe cases validol camphoratum has given distinct benefit.

"VAPOROLE" EPININE.

(BURROUGHS, WELLCOME, AND CO., SNOW HILL BUILDINGS, LONDON, E.C.)

Epinine is the synthetic hæmostatic which is said to possess all the remarkable physiological properties of the suprarenal principle. Being a synthetic preparation, it can be obtained in a particularly pure state, while the preparations of epinine are stable. Physiological tests have established that action on the blood pressure which is so characteristic of the suprarenal principle. Epinine is supplied contained in a "vaporole" or in a stoppered bottle containing 10 cubic centimetres.

SHAKER SALT.

(AGENCY, COSENZA AND CO., 95, WIGMORE-STREET, CAVENDISH-STREET, LONDON, W.)

This is a clean white salt which keeps its fine dry powdery condition owing to its purity and to the fact that 1 per cent. of carbonate of magnesia has been added to it. It is free from lime salts, but contains traces of sulphate. It does not cake or "lump." The pleasant saltiness of its flavour is due to the absence of impurities. We found present 98·86 per cent. of pure chloride of sodium.

STANDARD GERM FOOD.

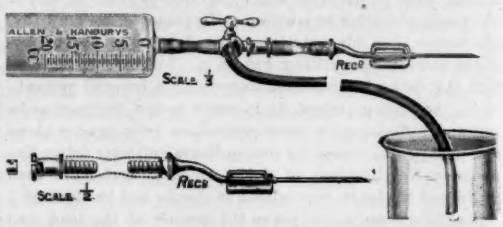
(H. W. MURFITT AND SON, DOWNHAM-ROAD, ELY, CAMBS.)

Analysis shows that this food cereal is rich in valuable dietetic constituents. Its composition suggests that it is rich whole wheat reduced to a fine powder and dried. The results of analysis were as follows: moisture, 4·50 per cent.; proteins, 11·90 per cent.; fat, 1·50 per cent.; mineral matter, 1·00 per cent.; carbohydrates by difference, 81·10. The mineral matter contains about half its weight of phosphoric acid. The food is entirely free from irritating branny particles. Practically 15 per cent. of the food is soluble in cold water, and this carries with it 0·80 per cent. of mineral matter. We regard it as a valuable cereal food presenting good dietetic points, and it can be employed in many agreeable ways, as with milk, for the preparation of a really nourishing article.

New Inventions.

A THREE-WAY SYRINGE AND CANNULA.

Messrs. Allen and Hanburys, Limited, of Wigmore-street, London, W., have constructed according to my suggestions a three-way syringe and cannula for the intravenous method of giving salvarsan. The needle, which is made of platinum with an iridium point, is only just over an inch in length, the advantages of a short needle being that it is not easily dislodged; is not likely to injure the vein or to perforate its walls; and the operator has more command over it. The point of the needle is on its under surface. Behind the needle is fitted a small plate, concave underneath, to lie more easily on the arm, and above it is a metal bridge through which a piece of tape can be passed and tied round the forearm or a piece of rubber tubing fastened by means of pressure forceps. The base of the needle then curves upwards and is fixed by means of a bayonet catch on to the three-way stopcock, which entirely prevents leakage. Between the catch and the needle there is a loose connexion made by thick rubber tubing. The advantage of this loose connexion is enormous, since any

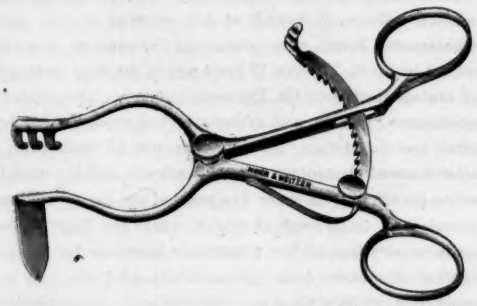


movement is not transmitted to the needle, which not only prevents the needle becoming dislodged from the vein but avoids injury to the intima. The stopcock is fitted with a projecting piece on the right side, to which is attached some rubber tubing for the purpose of conveying the salvarsan solution to the syringe. The syringe, which should be all glass and of 20 c.c. capacity or more, fits on posteriorly by means of a small piece of indiarubber tubing, which enables any syringe to be used and again prevents leakage. To use the syringe the tap should be turned at right angles to the needle and some saline solution drawn up the long tube into the syringe, which should be emptied and refilled until all the air has disappeared. With the syringe full of saline solution the tap should be turned until it is parallel with the needle and some of the solution injected to remove any solid particle or air from the needle; then, with the stopcock open, the needle should be grasped by the plate behind it and inserted into a vein. The moment the needle enters the vein blood flows back into the syringe. The plate should then be fixed as above described and the tourniquet removed from the arm and some saline solution injected to be quite sure that no infiltration forms. The tap is turned back again, the tube transferred to the salvarsan solution, which is then aspirated into the syringe and injected. When the salvarsan solution is finished the tube should be transferred back to the saline solution, and finally a small quantity of this solution injected to wash out the vein and prevent any leakage of "606" into the subcutaneous tissue. To inject a dose of "606" in this way occupies about six minutes.

Harley-street, W. J. E. R. MCDONAGH, F.R.C.S. Eng.

SELF-RETAINING MASTOID RETRACTOR.

I HAVE for some time past tried to find a satisfactory self-retaining retractor, and having failed in the attempt have got Messrs. Mayer and Meltzer of Great Portland-street, London, W., to make one to my design. It is made in pairs, right and left. The body is constructed on the mouth gag principle, with ratchet action, one blade terminating in the oblong plate rounded off at one end to a point, and so constructed that, however deep it is inserted into the auditory meatus, it cannot injure the tympanic membrane. The opposing blade terminates in a row of hooks. The plane of the blades is such that when opened to the width of 1½ in. the action of the two blades is absolutely parallel. In practice it is used as follows. In the mastoid operation, after making the skin incision, elevating the periosteum and separating it from the posterior wall of the osseous canal, the retractor, with blades

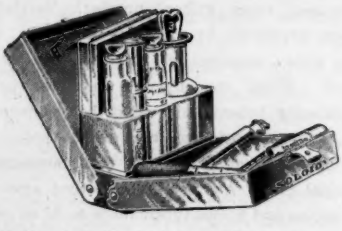


closed, is inserted from above, the blade with the oblong plate being introduced between the periosteum and the posterior wall of the osseous canal and pushed well down. The retractor is then opened and the posterior lip of the skin incision engaged with the hooked blade. It is then further opened until the posterior lip of the incision is put on the stretch by the hooks, and all the structures in front are pressed against the anterior wall of the osseous canal by the plate blade, thus giving an absolutely clear view of the whole field of operation. The advantages of the instrument are: It retains its position throughout the operation; the one instrument is suitable for all sizes of meati; it mechanically prevents all oozing; it leaves both hands of the assistant free; and it takes the place of a skilled assistant. If the operator is attempting to conserve drum and ossicles, as in Heath's operation, the instrument does not leave him entirely at the mercy of a careless assistant.

CHAS. A. ADAIR DIGHTON, F.R.C.S. Edin.,
Honorary Assistant Surgeon, Eye and Ear Hospital, Myrtle-street, Liverpool.

A BLOOD TEST CASE.

WE have received for inspection the "Soloid" Blood Test Case, No. 506, recently introduced by Messrs. Burroughs, Wellcome, and Co. of Snow Hill Buildings, London, E.C., which will prove of aid to the physician, since in many



more diseases than formerly was the case an examination of the blood is now made. Although the case is of pocket dimensions, the contents are so comprehensive as to include all the materials required for the speedy preparation of blood, pus, and tissue films. They comprise: one tube of "Soloid" brand Romanowsky stain (Leishman's powder), one 20 c.c. drop bottle, 10 c.c. stoppered phial of distilled water, 10 c.c. stoppered phial of methyl alcohol, 1 c.c. pipette, grease pencil, and vest pocket case containing six microscopic slides and Hagedorn needle in alcohol. Great skill and care have been exercised in designing the case, and it is of elegant workmanship.

MEDICAL INSPECTION AND TREATMENT OF LONDON SCHOOL CHILDREN.

THE London County Council's arrangements for medical inspection and treatment were the subject of discussion—and condemnation—at a meeting called by the Fabian Society at Clifford's-inn Hall, Fleet street, E.C., on March 16th.

Sir VICTOR HORSLEY, who presided, said the London County Council system of medical inspection was a failure and did not fulfil the intentions of Parliament. The way the Council had dealt with the matter constituted a breach of faith with the nation. The staff of school doctors was inadequate and the organisation was ridiculous from a medical point of view. In support of the latter statement Sir Victor Horsley referred to the proposal to place Dr. Kerr under the control of Mr. Blair.[1] The parallel question of dental inspection had not been taken seriously into consideration by the Council, except for two "experiments" at Deptford and Poplar. As to treatment, Sir Victor Horsley declared that the only way of carrying it out was by means of school clinics.

Mr. R. A. BRAY, L.C.C., summarised very succinctly what the Council had done in regard to this question since it first came into prominence at the beginning of 1909.

Dr. H. BECKETT-OVERY, in the absence of Miss Margaret McMillan, discussed "What the Council ought to do," speaking strongly in favour of clinics, which, he said, were not, as some seemed to think, second-rate hospitals. It was essential to have an institution in close touch with the school, so that the coöperation of teacher, parent, doctor, and nurse might be secured. Most of the ailments from which the children suffered needed not so much treatment by specialists as constant attention by a nurse under the supervision of a doctor. With adenoids, for example, the removal was a minor part, subsequent physical and breathing exercises were more important. At Deptford the medical treatment of 5000 children was found to cost just over 2*s.* per head. Dr. Beckett-Overy's final point was that for a clinic the general practitioner could perform the best service and he could decide which cases should be seen by a specialist.

Dr. MARION PHILLIPS spoke of the incomplete way in which inspection was carried out. More time should be devoted to each case, the parent should be present, and it should be part of the school doctor's duty to give the parent some information as to the child's condition. The speaker dealt with the disadvantages of the present system of treatment through the hospitals, and said out-patient departments were totally unsuitable for the work. What was needed was a place to which the children could go regularly and get the nursing that home conditions made impossible.

The discussion was then thrown open, and many interesting points were raised. A parent aired his grievance that, though a contributor to various hospital funds, he had to pay for his children's treatment at voluntary hospitals. Another speaker urged that every effort should be made to influence members of the council to throw over the hospital scheme and institute clinics, and another that definite information as to the cost of clinics and the number likely to be required in London should be supplied to the Council.

Dr. HASTINGS supported school clinics from the point of view of the hospitals and their staffs. The hospitals did not want the routine work the present system gave them; they wanted the "interesting" cases.

Other speakers diverged into wider social problems, such as the need for improvement of the home conditions of the working classes.

In closing the meeting Sir VICTOR HORSLEY declared that the Board of Education ought never to have allowed the Council to embark on its present scheme.

[1] THE LANCET, March 18th, 1911, p. 760.

THE LANCET.

LONDON: SATURDAY, MARCH 25, 1911.

The Epidemic of Measles in the Metropolis.

THE recent behaviour of measles once more throws into relief the remarkable tendency of the disease to display over and above its well-known predilections for certain seasons of the year, and its rise and fall in "minor waves," often of biennial rhythm, fluctuations in major waves of prevalence. These peculiarities of measles epidemics were first clearly described by Dr. B. A. WHITELEGGE, in a paper on "Measles Epidemics, Major and Minor," read before the Epidemiological Society in 1892. Dr. WHITELEGGE referred in this paper to the major waves of the "thirties," the early "forties," the "sixties," and the "eighties," and the years which have since passed by have seen the wave of the "nineties" (1892–1898), and now once more from 1909 onwards another major wave is being developed. As in PHARAOH'S dreams, the fat years are followed by lean years; but the major waves of measles cover, as a rule, a longer period than the seven years, "such as were never seen in all the land of Egypt for badness," and, moreover, in the case of the measles waves the general perturbation is disturbed by minor oscillations, for upon the upward and downward slopes of the major measles waves there are superimposed the (usually) biennial minor waves and the annual oscillations associated with seasonal prevalence.

Reference to the measles chart in Sir SHIRLEY MURPHY'S annual report for 1909 clearly shows that since the prevalence of 1897–98 London has enjoyed comparative immunity from measles for fully ten years; then in the early part of 1909 followed a notable exacerbation; and after the customary biennial interval there supervenes in 1911 the epidemic prevalence which is now just reaching its height. The number of measles deaths has, in fact, risen in the last four weeks from 131 to 138, to 175 and to 197, the last-named total being apparently the highest total weekly number of deaths from measles ever recorded in London. This very serious mortality is the more emphasised because other infantile maladies have in recent years shown marked abatement. Dr. WHITELEGGE in 1892 coupled measles with whooping-cough as representing zymotic diseases which had exhibited "little tendency to diminish their ravages." Whooping-cough, as Sir SHIRLEY MURPHY'S chart indicates, has never shown its head above the mean line (1841–1909) since the year 1890, and hence the development of the present major wave of measles brings that disease into a position of special prominence. The recent decision to utilise the hospitals of the Metropolitan Asylums Board for the treatment of certain cases of measles is an important one, and will be, no doubt, attended by considerable reduction of case mortality, and the children of the very poor will be far better cared for in these institutions than in their own homes. But a good deal still remains to be done with regard to securing earlier knowledge of the development of cases of measles, with a view to the adoption of measures of isolation and prevention.

A comprehensive and valuable report on measles was written by Dr. THEODORE THOMSON as long ago as 1896. This report discusses in a detailed way the use made of notification and of various preventive measures in a number of different sanitary areas. It is remarkable that hitherto so little practical effect has been given to the teaching of this report. The points emphasised by Mr. JOHN BURNS last week, in summarising conclusions arrived at by London medical officers of health at the meeting at the Local Government Board, were practically the same as those discussed by Sir R. THORNE 15 years ago in the final paragraph of his introduction to Dr. THOMSON'S report. They included notification, prompt and systematic visitation, further hospital accommodation, the judicious use of restriction of attendance at elementary and other schools, and the need for exclusion of children under five years of age during epidemic prevalence. In no single district in which Dr. THOMSON had made inquiry had all the practicable measures for the prevention of measles been systematically adopted. In how many districts have all these measures been "systematically adopted" in the last 15 years? Sir R. THORNE observed, in commenting upon Dr. THOMSON'S report, "Good result is not to be expected from adoption of any one of (these) several measures ..... each one ..... must be regarded as necessary and supplementary to the others." Dr. THOMSON'S report came nearly at the end of the major wave of the "nineties," and in the comparative calm of a succeeding ten years' interval it received less attention than was its due. Now that a major wave of measles is again upon us, Dr. THOMSON'S facts and conclusions will doubtless again be weighed and considered, and it may safely be predicted that the outcome will be a more practical one now than it was at the end of the prevalence of the "nineties."

Tuberculosis in India.

WE have received a copy of a report on "How Tuberculosis is Spread in India," by Dr. J. A. TURNER, executive health officer, Bombay, which presents numerous interesting features. The modes by which tuberculosis, more particularly the pulmonary variety, is conveyed in Europe have been discussed times without number. Varying opinions have been expressed by different observers, and these opinions have occasionally had to be modified or abandoned. When the theory was first promulgated that pulmonary tuberculosis could be communicated by infection it was considered that dried sputum was the greatest danger—that is to say, that inhalation played the principal part. Another problem then arose—namely, whether human and bovine tuberculosis could be respectively communicated to cattle and human beings. In 1901 KOCH stated that tuberculosis could only be caused by food substance through a primary infection of the intestine. The work of VON BEHRING and others has shown, however,

that bacilli can pass through the healthy walls of the intestine and become lodged in the lymphatic glands and ultimately reach the lungs without causing any lesions in the intestine. Thus flesh and milk from tuberculous animals may also be an important factor in the causation of pulmonary tuberculosis. There is, however, a third source of infection which has scarcely received in this country the attention which it merits—namely, the possible contamination of food matters by individuals and animals the subjects of active tuberculous disease.

The sources by which tuberculosis is spread in India have not been so minutely studied, and Dr. TURNER'S remarks offer some valuable suggestions as to the differences which exist in the factors most potent in the dissemination of the disease in Europe and India respectively. In the first place he shows that the mortality from tuberculosis is higher in India than in England, and he then proceeds to briefly describe the methods of life led by the natives which especially tend to encourage the dissemination of the pathogenic bacilli. The first question he investigated was as to whether cows or buffaloes suffer extensively from tuberculosis in India, and he came to the conclusion that cattle are affected, but only to a slight extent. He then endeavoured to ascertain whether milk could be infected from human or bovine agencies, after it had been drawn from a healthy animal, by the habits and customs of the attendants or by the infected fæces of the tuberculous animals. His account of the manner in which the milch cattle stables, dairies, and milkshops in India are conducted is certainly not encouraging, and the habits and customs of the gowlis, their methods of milking the cattle and washing themselves and their milk vessels, leave much to be desired. The milk vessels are scoured with cowdung and dirt, the buffaloes and cows wallow in their excrement, and the buffaloes are washed at the same well that the milk vessels are cleaned at. Considering that the results of the Royal Commission on Tuberculosis (at the present time carrying out its investigations in this country) prove clearly that the fæces of the tuberculous cow are loaded with bacilli, the conditions referred to above show that there is a great possibility of the milk becoming infected. In addition Dr. TURNER says that it is a common thing to see the gowlis and stable attendants making their morning toilet at the well, and at the same place and with the same water they use for washing the buffaloes and milk vessels. A third point which Dr. TURNER investigated was as to whether human beings, especially children, could contract tuberculosis because of the intimate relation of the working classes with cows, bullocks, and buffaloes, and the enormous use which is made of cowdung, some of which must be infected. Cowdung mixed with urine and mud is used for plastering walls and floors and roofs of houses, and it is stored in the house. Even in large cities in India the cow and bullock are inmates of the dwelling-house, and all the cooking-pots and vessels used are scoured with cowdung from the street. From these observations it is therefore evident that the prevention of tuberculosis in India is intimately involved with the housing problem, perhaps even more intimately than is the case in our own country. Given healthy environment, the incidence of tuberculosis is lessened in India as elsewhere, while the climate must have some influence on the life of the bacilli, as the heat of the sun would kill the organisms if they are exposed to it. The dust of the streets where there is so much bullock traffic probably contains many bacilli, while the flies are an additional danger in conveying the infection. In addition, therefore, to the risks of infection from dried sputum, the habits of the natives undoubtedly tend to convey the bacilli, and the difficulties in the way of prevention must prove even greater than in England. Dr. TURNER makes many practical suggestions in relation to this matter, and shows the admirable sanitary work which is now being done in India to the best advantage.

A subject which is not discussed in this report is the influence of race. It is generally acknowledged that some of the dark races are especially prone to be attacked by tuberculosis. For instance, the negro is very susceptible, especially when removed from his own country, and an American observer, Surgeon KENNEDY, has stated that the mortality from this disease in a tribe of Red Indians living in the Rocky Mountains, in a splendid climate, amounts to 23 per cent. of the total death-rate. Similar observations from India and other countries on the lines of Dr. TURNER'S report would be of considerable interest and value. The diminution in the incidence of the disease in Great Britain which has accompanied the improvement in the general hygiene of the big cities is encouraging. Improvement in the dwelling-houses of the working classes and supervision of the milk-supply are all-important, and they would appear to be even more urgently required in India, where, moreover, the difficulties of compelling sanitary improvements are immense. The sections of the Act relating to the control of milk in Bombay are stated to be so defective that little control can be exercised over the sale of milk. Nevertheless, as much should be accomplished as possible. The opportunities for the contamination of the milk, even although tuberculosis does not seem to exist to a great extent amongst cattle in India, are so many that attempts must be made to guard against all such sources of infection, whether of bovine or human origin. If the milk-supply could be rendered more secure against pollution much would be done towards the prevention of the disease in India as with us. The nature of the climate tends to counteract in some measure the danger by inhalation, and if the risk of infection by food and milk could be lessened the mortality now caused by the disease would be doubtless considerably lessened. This is the main lesson taught, and now being put into practice by the executive health officer of Bombay.

LONDON SCHOOL OF TROPICAL MEDICINE.—Arrangements have been made for lectures on tropical subjects to be delivered to nurses at the London School of Tropical Medicine, Royal Albert Dock, E. Any qualified nurse may attend the course whether she intends proceeding abroad or not. Further information may be obtained from the Matron, Seamen's Hospital, Royal Albert Dock, E.

Markham *v.* Abrahams.

THERE would appear to be an increasing tendency on the part of the public to seek for pecuniary damages on account of injury said to have been occasioned by the acts or defaults of unqualified persons who have attempted the discharge of medical or surgical functions. The recent action against Mr. BARKER the bone-setter was hardly concluded when that of MARKHAM against ABRAHAMS came on for trial and occupied the LORD CHIEF JUSTICE and a special jury during the whole of two days, which might surely have been better employed. The plaintiff, a young lady who was preparing to be a science teacher, and had passed certain examinations with that view, became conscious of a defect of sight, and in 1907 she went, during his advertised "consulting hours," to the shop in Manchester of the defendant, who described himself as "an eyesight and spectacle specialist" and "a qualified optician of London," in order to seek advice. She was examined by an assistant and received spectacles; and during the next two years she paid further visits to the shop, usually seeing an assistant, and once seeing the principal himself. Her spectacles were changed on more than one occasion, but the result was unsatisfactory; and in 1909 she consulted Mr. CHARLES WRAY, who discovered her to be the subject of advanced conical cornea, and advised accordingly. She was compelled to abandon her intended profession; and it was maintained on her behalf that if the defendant had exercised reasonable care, and had been possessed of reasonable skill, he would have seen the case to be one of disease; that he had represented himself as a specialist and was bound to show reasonable care and skill as such; and that he could not avoid liability by saying that he was merely a tradesman engaged in the sale of spectacles. It was urged for the defence that the defendant did not profess to be a person able to diagnose and cure diseases of the eye, but was simply a maker and seller of spectacles. A chance customer came in and asked for spectacles to let her see better; she was tested, not for disease, but to find what spectacles would best assist her sight, and the defendant was only paid for supplying those spectacles, not for examining for disease. Mr. ENSOR, the defendant's assistant who first saw the plaintiff, said that he tested her eyes, found that she was astigmatic, and supplied her with spectacles which he told her would enable her to see better. He admitted that he had not made a study of the diseases of the eye; but it appeared, from the evidence of the plaintiff herself, that he had "used an instrument for throwing a strong light into her eyes." It is therefore manifest that she was examined with an ophthalmoscope.

The LORD CHIEF JUSTICE, in summing up, characterised the case as an extremely difficult one, and asked the jury whether they could say, "in view of the fact that opticians carried on a well-known trade, that they were under any obligation to discover disease?" The general framing of this question appears to indicate that his lordship would himself have answered it in the negative. With great respect for him, we would urge that the answer should depend entirely upon the acts and representations of the defendant or of his agent. If the plaintiff merely went into a shop where spectacles were sold, asked to see some, and selected a pair for herself, it is clear that the salesman would have no responsibility. But surely, if the plaintiff does not select for herself, but is "examined" in some way which she does not understand, and then has spectacles selected for her, and is induced to purchase them by a statement that they are what her condition requires, the salesman who attends upon her is clearly making a claim to special knowledge of the conditions governing sight, and ought not to be permitted to evade responsibility on the ground that he is a mere salesman, selling what his customer chooses to buy. During the considerable controversy which raged around the doings of so-called "opticians" a year or two ago, it was strongly urged on their behalf that they would always be able to detect "disease," and would be only too anxious to transfer any sufferer from it to the care of a competent adviser. We pointed out at the time that this claim was absurd; and in the case now under consideration the defendant himself said in the witness-box that he had "had no training or experience in diagnosing or dealing with diseases of the eye." The same was manifestly true of his assistant, Mr. ENSOR, who used the ophthalmoscope to test the plaintiff's refraction, because, as the late Sir WILLIAM BOWMAN pointed out 50 years ago, even the quite early stages of conical cornea are rendered conspicuous by the first glance at the eye through that instrument. If Mr. ENSOR had been a competent examiner he could not have failed to see by the shadow playing round the base of the cone that there was at least something unusual in the condition of the eye, something which, if it did not reveal disease to him, should at least have induced him to suspect it. We, therefore, think that he must have made a claim to the possession of skill and knowledge which, as a matter of fact, he did not possess, and had never had any opportunity of acquiring. From this point of view we entirely approve the verdict for the plaintiff, and at the same time we find no fault with the moderation of the sum of £25 awarded to her, although it is no sort of compensation for the injury she has sustained. The public must really be taught to use common sense, and to go to skilled advisers when they are in need of skilled advice. The case of Miss MARKHAM was one to which the maxim of "*caveat emptor*" should apply, and persons who are induced by the sort of patter that may be talked by unscrupulous shopmen to regard the talkers as authorities upon a difficult branch of medical science have only themselves to thank for any results which may ensue.

We regret to add that the trial gave occasion to something like a conflict of medical testimony, of a kind which might probably have been spared, and which could not fail to increase the difficulties of the judge and jury. Mr. WRAY, who was the first medical man to see the plaintiff, gave his evidence very fairly and clearly, and described conical cornea as a rare disease, occurring in perhaps one case out of a thousand, and he does not appear to have been asked about the possibilities or prospects of treatment. For the defence it was sought to establish that the disease was so rare that no recognition of it was reasonably to be expected, and so completely incurable that no ill-results could be

traceable to the circumstance that it had not been discovered. Mr. SYDNEY STEPHENSON (we quote from the *Times* report) said that conical cornea was a "very rare disease; he would estimate it at one case in 10,000 patients"; and that "in its incipient stage it was very difficult to discover"; while Mr. G. HARTRIDGE said that "there was no known treatment which would avail with conical cornea." Both gentlemen were, of course, giving accurate expression to their own experience or convictions; but we doubt whether ophthalmologists generally would be found to agree with either of them. Conical cornea occurs, as a rule, chiefly in adolescents of studious habits, and therefore does not occupy a large place in hospital statistics. PANAS quotes WHITE COOPER as having observed 194 cases in 209,000 patients, or 1 in 1077, figures so large that hospital cases must certainly be included in them. Mr. BRUDENELL CARTER contributed to THE LANCET in 1892 (Vol II., pp. 988 and 1374) a report on 10,000 consecutive cases of eye affection seen in private practice in London, and among these there were 20 of conical cornea, 5 males and 15 females, or 1 in 500 of the whole. There were 2431 simple refraction cases, to which those of conical cornea bore the proportion of 1 in 121·5. It is obvious that, apart from presbyopia, only the refraction cases and the early cases of conical cornea or of chronic glaucoma would be likely to find their way to a spectacle-maker's shop; and it may be inferred that an "optician" might be likely to see a case of conical cornea among every 130 or so of his younger customers. On the question of treatment, again, it is impossible to forget that the progress of conicity has, in a very large number of cases, been completely arrested, and the eye restored to fair and permanent usefulness, by the formation of a central cicatrix at the summit of the cone, and of a lateral pupil behind the portion of the cornea which most nearly retained its normal curvature. The excellent work of VON GRAEFE, carried on by Sir WILLIAM BOWMAN and his contemporaries, and materially improved upon in our own day by Sir ANDERSON CRITCHETT and by the use of the galvanic cautery, ought certainly not to have been ignored as an aid to the jury in estimating the amount of injury suffered by the plaintiff as a consequence of her reliance upon an adviser who was incompetent to advise. If she had sought surgical aid in 1907 she might have been enabled to continue the occupation which she has now been compelled to relinquish.

DEATH OF LORD AIREDALE.—When in the year 1904 the University of Leeds was inaugurated, among the first list of honorary graduates the name of Sir James Kitson found a natural position as being that of a man held in universal respect, fully alive to the responsibilities and duties of citizenship, generous in his views and in his actions, and a warm supporter and patron of the various charitable institutions of his native town, in many of which he had taken an active interest. His work as the head of a great industry made him an appropriate recipient of the degree of Doctor of Science. By the death of Lord Airedale, which occurred suddenly in Paris while he was on his way home from the Riviera, Leeds has to mourn the loss of one of its most distinguished public men and the University one of its earliest graduates.

Annotations.

"Ne quid nimis."

SUNSHINE AND RAINFALL IN 1910.

	Sunshine.		Rainfall.		
	Number of hours.	Difference from average.	Total fall.	Difference from average.	Number of days with rain.
		Hours.	Inches.	Inches.	†
Sandown	1672	*	36·4	*	203
Ventnor	1654	− 69	32·1	+ 2·5	204
Southampton	1517	−148	33·6	+ 2·7	190
Bournemouth	1715	*	33·6	*	191
Jersey	1739	−188	44·4	+10·2	230
Guernsey	1773	−133	46·2	+ 8·6	232
Weymouth	1695	*	30·4	*	183
Torquay	1770	+ 39	41·0	+ 7·7	222
Plymouth	1652	+ 2	44·3	+ 8·4	212
Falmouth	1730	− 36	53·0	+ 7·6	230
Scilly	1660	−151	36·6	+ 3·0	226
Penzance	1713	*	44·4	*	238
Newquay	1716	+ 29	36·0	+ 1·0	216
Cardiff	1603	*	47·2	+ 4·5	235
Pembroke	1593	− 49	38·9	+ 3·8	232
Llandudno	1564	+108	36·7	+ 5·9	225
Rhyl	1656	*	23·7	+ 2·7	210
Southport	1570	+104	35·0	+ 2·1	213
Blackpool	1627	+218	33·3	− 0·5	217
Carnforth	1378	*	39·7	*	214
Scarborough	1297	*	25·9	− 1·4	191
Whitby	1389	*	22·6	− 3·1	180
Skegness	1504	*	26·0	*	198
Cromer	1425	*	25·5	*	256
Yarmouth	1648	*	28·5	+ 3·2	170
Lowestoft	1667	*	29·0	+ 5·3	172
Felixstowe	1768	*	25·4	*	189
Clacton	1594	*	21·5	*	163
Southend	1443	*	22·0	+ 0·7	173
Margate	1454	− 86	28·3	+ 5·3	183
Folkestone	1727	*	34·6	+ 6·6	180
Dover	1683	*	34·1	*	192
Hastings	1719	− 64	28·9	− 0·2	212
Eastbourne	1752	+ 13	34·8	+ 3·9	174
Brighton	1690	− 41	32·4	+ 4·8	179
Worthing	1731	*	32·6	+ 5·9	191
Harrogate	1407	*	34·0	+ 4·5	201
Buxton	1423	*	43·7	− 1·9	209
Bettws-y-Coed	1210	*	58·7	*	232
Llangammarch Wells	1236	*	58·8	*	239
Bath	1578	*	39·6	+ 9·1	193
Cheltenham	1431	*	31·1	+ 3·5	176
Tunbridge Wells	1543	− 45	35·3	+ 5·7	198
Newcastle-on-Tyne	933	−133	24·6	− 2·8	206
York	1229	− 47	24·6	− 0·7	191
Hull	1062	*	25·6	− 0·2	207
Sheffield	1264	*	31·0	− 1·6	190
Nottingham	1285	*	24·7	− 0·1	203
Birmingham	1113	*	31·3	+ 3·9	202
Manchester (City)	982	*	37·5	+ 2·3	223
Prestwich	1015	−119	40·0	+ 3·0	219
Liverpool (Bidston)	1585	*	28·6	− 0·2	227
Oxford	1376	−122	29·2	+ 3·1	192
Cambridge	1501	− 59	22·8	+ 0·1	185
London district. Tottenham	1373	*	21·2	*	186
Camden Square	1183	*	25·4	+ 0·2	186
Westminster	1146	+ 2	23·4	− 1·0	201
Greenwich	1379	−125	28·1	+ 4·0	185
Norwood	—	—	27·8	+ 2·9	191
Bunhill Row	1047	− 93	—	—	—
Kew Observatory	1350	−117	25·5	+ 1·5	180
Strathpeffer	1150	− 38	33·6	+ 1·4	230
Fort Augustus	1016	−127	42·2	− 2·4	216
Aberdeen	1369	− 32	27·7	− 3·0	223
Nairn	1240	*	27·5	+ 2·8	233
Glasgow	1044	− 51	39·2	+ 0·5	194
Oban	1404	*	51·9	*	221
Marchmont	1314	− 17	28·9	− 5·5	193
Dublin	1433	− 97	31·4	+ 2·9	221
Birr Castle	1280	− 70	34·2	+ 1·2	231
Armagh	1323	+ 33	32·5	+ 0·6	217
Valencia	1344	−113	52·8	− 3·7	268

* No trustworthy average.
† A day with at least 0·01 in.

The above statistics have been compiled from the annual summary of the weather, issued by the Meteorological Office, and afford on the briefest examination a good idea of the general character of the weather during the past year. It

will be at once observed that the only parts of the kingdom which did not suffer from a lack of sunshine were the coast of Lancashire and North Wales, Torquay, and some other resorts on the South-West of England, the North of Ireland, and one or two isolated localities elsewhere. The sunniest districts were the Channel Isles, the coast of Devon, and various resorts on the coast between Bournemouth and Felixstowe, while the most sunless were the City of London, and some of the large populous centres of the North, the absolute lowest record being 933 hours at Newcastle-on-Tyne. Compared with Torquay, the sunniest spot on the mainland, the figure at Newcastle is remarkable, showing an average of little more than 2½ hours per day against an average at Torquay of more than 4¾ hours. The greatest minus difference from the normal was at Jersey, which suffered a loss equal to more than half an hour a day, while at Blackpool, the only place with a very notable excess, there was a similar amount per day gained. In the metropolitan area there was a general deficit, except at Westminster, where the total number of hours exceeded the average by two. Over the kingdom as a whole the rainfall was in excess of the average, the plus value being very large in the Channel Isles, at many places in the south-west of England, and also at Bath. It may be remarked that for several years before 1910 the south-west of England had an annual fall considerably below its normal. The driest place given in the table is Clacton, with no more than 21·5 in., but Southend-on-Sea, Cambridge, and Whitby had an aggregate nearly as low, while the number of days with rain was smaller at Tottenham than in any other part of the kingdom. Many districts in England experienced at least 50 more days with rain than Tottenham, and at Cromer there were as many as 99 more rainy days. The frequency of slight rain in some parts of East Anglia was one of the most noteworthy features of the year. Very few localities in the wettest districts of Ireland and Western Scotland had rain on more days than Cromer, and yet at Great Yarmouth and Lowestoft the number was relatively low—only 170 at the former, or 85 less than at Cromer. Although the general character of the year was wet there were dry patches, especially in the centre and north-east of Great Britain, and also in the south of Ireland. In the latter region most of the recent years have been markedly deficient in their rainfall, and last year the largest deficit was at Roche's Point at the mouth of Cork Harbour, where the total fall was 5¾ in. less than the average.

THE CONQUEST OF CONSUMPTION.

ONE of the most hopeful auguries for the eventual conquest of tuberculous disease is the increasing attention that is being devoted to this subject by public health authorities, philanthropic agencies, and administrative bodies. The various suggestions for the establishment of sanatoriums for poor consumptives, for compulsory notification, and for invalidity insurance are all indications of the increasing interest aroused in this subject. One of the greatest needs at the present time is a general awakening of the public at large to the main facts in connexion with this disease and to the great waste of human life and activities which it entails. Dr. A. Latham and Mr. C. H. Garland have recently published a new and revised edition of their book, "The Conquest of Consumption: an Economic Study."[1] In it they give an interesting and instructive account of some of the main problems in connexion with this disease, written in simple, non-technical language, and they also suggest a scheme for an efficient campaign against consumption, with some calculations of the probable cost. In our review of the first edition of this book we pointed out that the statistics of the mere monetary loss produced by tuberculosis among the wage-earning classes, as given by Dr. Latham and Mr. Garland, were simple but convincing. Consumption alone appears to cost the friendly societies more than £1,000,000 a year in sick benefits, and if to this are added the sums expended by means of Poor-law relief and by charitable agencies, such as special hospitals and sanatoriums, the total direct loss is estimated at nearly £3,000,000 a year. The subject of State intervention in this matter is discussed in an interesting and practical manner. The writers assert that it is the duty of the State to protect the population from this disease and to provide means of regaining the wage-earning capacity to those who fall victims. They estimate that of the total population of 43,000,000, only 2,000,000 persons are in a position to pay fully for treatment of this disease if they fall victims to it, and that of the remainder 13,000,000 are so near the poverty line that they would be quite unable to contribute towards their own treatment. Any successful scheme for dealing with this question must, they propose to demonstrate, embrace measures for the prevention of the spread of infection, the detection of the disease in its early stages, the provision of adequate sanatorium and home treatment, the support of the family when the breadwinner is away, and the question of after-employment. The essentials of the scheme suggested in this book are the provision of 30,000 sanatorium beds, the establishment of anti-tuberculous dispensaries, the allowance of a weekly payment of £1 to the individual patient's dependents, and some means of dealing with the hopeless and incurable cases. It is estimated that about 56,510 persons contract consumption every year, and that the total consumptive population reaches figures between 250,000 and 300,000, many of whom are in such an advanced stage that there is no hope of restoring them to lasting working capacity. The suggested scheme would provide adequate accommodation for 60,000 patients per annum if treatment at the sanatorium were to extend to six months. The estimated cost, based on certain actuarial calculations, would involve a capital outlay of £2,250,000 and an annual expenditure of £4,500,000, the latter diminishing as the good results of efficient and early treatment became felt. Dr. Latham and Mr. Garland defend the sanatorium system against the attacks which have been made against it, and especially against the suggestion that if some specific treatment more effective than the present tuberculin injection is discovered the sanatoriums will be unnecessary. They admit that the details of any comprehensive scheme and the methods of raising the necessary money are questions to be worked out by statesmen, but conclude by stating that their endeavour has been to show the urgent necessity of both Government inquiry and State intervention. The problem is certainly one of national importance, and one which will sooner or later have to be faced. This little book is a practical discussion of the question and one which may be read with advantage by the public, for whose instruction it is primarily intended.

[1] The Conquest of Consumption: An Economic Study. By Arthur Latham, M.D., and C. H. Garland. London: T. Fisher Unwin. 1911. Pp. 159. Price 1s. net.

WINKLES AND TYPHOID FEVER.

A CASE of typhoid fever having been traced to winkles taken from the river Ouse at Newhaven the urban council of that town prosecuted at Lewes petty sessions on March 14th a man who had been gathering the shell-fish from the river bank. An officer of the council approached the man while taking the winkles. He informed him that they were not fit for human food and asked him to give them up. The man declined, but consented to interview a magistrate who at once condemned the winkles as being

unfit for human consumption. The man still refused to give up the winkles, hence the summons and the police court proceedings. Defendant contended that if properly cleaned the winkles would be wholesome and of good flavour. The justices, however, thought otherwise and imposed a fine of 5s. The fine does not err on the side of severity, but it was the first case of the kind taken by the authorities under the Public Health Act. Authorities in general while looking after winkle gatherers might do well to give some attention to the condition of the river banks where winkles unfit for human consumption appear to thrive.

BERI-BERI ON SHIPS.

BERI-BERI is met with at British ports on board ships under two different conditions: (1) on ocean-going steamers carrying Asiatic crews; and (2) on sailing ships, manned chiefly by Scandinavians, coming into port after a protracted voyage. Modern scientific investigation has brought forward very strong evidence associating the disease with the consumption of white polished rice from which there had been removed in the process of milling certain layers of the rice grain containing relatively large proportions of organic phosphorus; and that among the coolies employed on the plantations in the Malayan Peninsula this form of "phosphorus starvation" was the cause of beri-beri. An Asiatic crew on ship board among whom white or polished rice was the staple article of diet might be expected to suffer from the disease in the same way as the Malayan coolie on shore. But on the sailing ships the crews of which are Europeans, and where little or no rice is consumed, it was until lately more difficult to account for the appearance of beri-beri. These ships, owing to their slower progress, remain at sea for long periods, during which no fresh meat or vegetables can be obtained. Their dietary is of necessity made up largely of preserved food, much of it tinned. There has been brought forward recently evidence to show that in some of the processes employed for preserving these kinds of food the organic phosphorus is extracted or destroyed, and also that the growth of certain moulds on long-stored foodstuffs robs them of a proportion of their phosphorus. So that it appears that beri-beri may be produced by the same cause, not only among coolies in the East and Asiatic sailors aboard steamships, but also among European seamen on sailing vessels during long voyages. The deficiency of the necessary amount of organic phosphorus in the dietary produces wasting of nerve tissue which needs a certain amount of that element for its normal nutrition. It is not so long ago that beri-beri was regarded by some persons as an infectious disease, and this view still retains a hold upon the public mind. In THE LANCET of March 4th our correspondent in Ireland reported that three negroes had been landed at Galway from a barque which had arrived there from the West Coast of Africa, and that under the directions of the port medical officer the patients had been removed to the union fever hospital. Considerable anxiety, it was stated, had arisen from the presence of beri-beri in the town, the sanitary condition of which, it was admitted, left a good deal to be desired. Since this was published one of our readers has written to point out that the good people of Galway had no cause for anxiety, since the disease was not due to infection and could not therefore spread from imported cases; some of his own experience of the disease while abroad was also quoted by him in support of his opinions. It may be mentioned that on March 9th a question was asked in Parliament as to the isolation of these cases. In this connexion we may refer to a leaflet recently issued by the Marine Department of the Board of Trade, giving instructions on the subject of beri-beri, and intended primarily for the use of masters of steamships carrying Asiatic crews. After a distinct statement that beri-beri "is not contagious from one man to another," the leaflet goes on to describe the symptoms of the disease; the appropriate treatment is then indicated and the prophylaxis discussed. The theory of causation of beri-beri by white rice appears to be accepted by the Board of Trade, for it is strongly recommended that the ship's stores should contain no white or polished rice, but that yellow or unpolished rice should be substituted. At the same time an open mind is kept, for the leaflet states that the instructions issued by the Board of Trade will be liable to revision as the advances of our knowledge of the causes and effects of the disease may require. It is further mentioned that though many deaths from beri-beri are annually reported to the Board as having occurred on British vessels, these may not show the full extent of the mortality from the malady, since other cases which are reported as dropsy, paralysis, or heart disease may very probably be in reality deaths from beri-beri. The Board of Trade's leaflet should prove of great service in spreading knowledge as to the causation of this interesting disease and to the simple means for preventing it. To the masters of vessels carrying no surgeon the outlines of treatment given in the instructions should be of much assistance in the event of any of their crew being attacked.

THE "DRY" WINE AND THIRST.

THERE is a curious lay impression that the so-called "dry" wine conduces to thirst, a literal meaning, no doubt, being associated with the word "dry." Applied to wine, the word "dry" really means, of course, free from juice which implies sugar. As sugar disappears in a wine by the continuance of fermentation the acid character of the fluid comes into evidence. Sugar, in fact, masks acidity, and the use of sugar in a lemon squash or on a fruit tart is resorted to for that reason. The acidity, however, is still there, but owing to the presence of sugar the acid is probably not so rapidly diffused, and therefore it does not have such an exciting effect upon the sensory nerves. It can hardly be supposed that because a wine is "dry"—that is, contains a minimum of sugar—it is thirst-producing. The "driest" of all wines is claret, and that is why so many people regard it as a sour or acid wine, there being practically no sugar present to balance the acidity. Sound claret is, as a matter of fact, the least acid of wines and the least sugary, but no complaint is made against it that it is thirst-producing. Champagne is just as acid as, if not more so than, claret, but contains more sugar, and it is champagne which is commonly accused of giving rise to a considerable thirsty feeling. The ingestion of much sugar gives rise to thirst, but a dry champagne contains not more than 2 per cent., and a reputed pint would not contain more than one-fifth of an ounce of sugar, which is less than many people use in a cup of tea or coffee. Another theory has reached us, which is that champagne gives rise to thirst because it is "limed" to make it "dry." Here again the suggestion is that the word "dry" connotes an absence of moisture or that lime absorbs moisture and leaves the consumer thirsty. The theory is manifestly absurd, and as a matter of practice lime is never found in the wine. It is, however, so common a matter of observation that champagne leaves a thirsty feeling, that there must be some reason why that wine should be distinguished from other wines in having this post effect. The sparkling quality of champagne, perhaps, coupled with the sugar contents, is probably a factor. Apart from the consideration that an alcoholic beverage is in itself a diffusible stimulant, its action is, no doubt, considerably accelerated when that

beverage is effervescing. Carbonic acid gas acts as a stimulant to the movements of the stomach and further aids the mechanical processes of digestion. It is probable, therefore, that dry sparkling wines are more readily diffusible than still wines, their effects are more pronounced on the functional activities, the fluid equilibrium of the blood is disturbed, its density is increased, and thirst tells this long tale.

A RARE TYPE OF UNILATERAL HÆMOTOGENOUS INFECTION OF THE KIDNEY.

IN the *Yale Medical Journal* for January Dr. G. Emerson Brewer of New York has described an acute type of unilateral hæmotogenous infection of the kidney which he has studied since 1896. It is well known that in certain slight surgical lesions, such as boils, whitlows, and mildly infected wounds, and in some trivial medical diseases, such as coryza, bronchitis, and tonsillitis, as well as in severe infections, microbes enter the blood-stream. If their number is small, their virulence low, and if the kidneys are healthy, they may pass into the urine without causing any demonstrable lesion. If, on the other hand, their number is large, if their virulence is high, or if one or both kidneys are diseased, lesions are produced which vary from slight cloudy swelling or glomerular nephritis to complete destruction of the organ by purulent infiltration or necrosis. In the great majority of cases the early symptoms produced by this bacterial invasion of the kidney are comparatively mild, and are rarely differentiated from those of the primary disease or lesion. But as the renal disease advances a more or less characteristic group of symptoms is developed, such as increasing pyrexia, local pain and tenderness, pyuria, and leucocytosis. If unrelieved by treatment the patient becomes profoundly ill, and a diagnosis of pyelonephritis, pyonephrosis, abscess of the kidney, or perinephritis is easily established. The progress of the disease is gradual, but in the rare type now described, on account of the virulence of the infecting organism or the low resistance of the patient, the infection of the kidney is immediately followed by a toxæmia so intense as to resemble the onset of pneumonia or other acute infection, and the local symptoms are so overshadowed by the general symptoms that they are overlooked unless an unusually careful physical examination is made. If both kidneys are infected the patient, often without obvious cause, becomes violently ill with high fever, total suppression of urine, and rapid prostration, and dies in a few days from a combination of sepsis and uræmia. In the unilateral type, which Dr. Brewer thinks is the more frequent, death is due to sepsis alone, as one kidney continues to act. The following is an example. A woman, aged 28 years, was admitted into hospital suffering from a fracture of the leg and contusions. After three weeks, during which there was no evidence of disease, she suddenly became ill with symptoms suggesting a severe attack of influenza. The temperature rose to 104° F., and she complained of severe pain in the back and limbs. After two or three days tenderness over the right kidney and albumin and pus in the urine were found. Exploratory nephrotomy was advised but declined. The symptoms increased; she complained of constant aching in the right flank, had chills, became delirious, and showed every evidence of profound sepsis. Consent was finally obtained to lumbar nephrotomy. The perirenal fat was œlematous and the surface of the kidney was studded with deep, red, and elevated lesions. On incising the cortex the whole parenchyma was found filled with minute abscesses, of which the largest was 0·5 cm. in diameter. There was considerable hæmorrhage, which was controlled with difficulty. The incision was packed with gauze and the external wound was partly closed. The patient died after 12 hours. Dr. Brewer has observed 14 cases of this severe type of unilateral infection of the kidney. Of these, two were untreated, and death occurred in both within 12 days. Four patients were treated by nephrotomy and drainage, and all died soon after operation. Eight were treated by early nephrectomy and all recovered. He therefore strongly recommends this treatment, and says that to procrastinate or adopt other treatment is to invite disaster. But there are milder types in which less radical measures are indicated. These often simulate appendicitis, cholecystitis, or hepatic abscess. If unrecognised and unrelieved by treatment the disease progresses to the more definite and easily recognised text-book lesions, such as nephritic or perinephritic abscess, pyelonephritis, or pyonephrosis. The lesions are of the same general character as those of the severe type, but are fewer and involve less renal tissue. Stripping the capsule from the organ when the lesions are small, or a combination of this with the opening and draining of cortical abscesses or necrotic areas, is the best treatment. The following is an example. A woman, aged 26 years, complained of right-sided abdominal pain, nausea, headache, and fever. The temperature was 102° and the leucocytes numbered 19,000. Catheterisation showed that the urine from the right ureter contained a few pus cells, albumin, and blood. The right renal region was tender. Lumbar incision revealed œdema of the perirenal fat and a congested kidney with six indurated areas. They were incised and packed with gauze which was allowed to protrude through the wound. Only one contained pus. The renal pelvis was opened and appeared normal. Cultures from the pus showed the bacillus coli. Slow recovery ensued.

CAISSON SICKNESS AND COMPRESSED AIR.

Dr. Leonard Hill recently read a paper on this subject before the Royal Society of Arts, giving an account of the experiments he had carried out with the help of first one and then another colleague—J. J. R. Macleod, C. E. Ham, M. Greenwood, F. Twort, and H. B. Walker. It used to be believed that exposure to compressed air immediately alters the distribution of the blood, forcing it inwards and causing a congestion of the viscera, which is suddenly and dangerously altered on decompression; and in spite of the writings of many investigators in France and Germany it was not until 1879, when Paul Bert published his great work "La Pression Barométrique," that the truth became generally known on the continent. But in England and America, where many great caisson works were initiated, engineers remained in ignorance of Bert's work and the mechanical theory held sway. In 1893 Dr. Hill began the experimental study of the subject in England, and by his experiments he established the truth of Bert's conclusions and overthrew the mechanical doctrines which were generally held here and in America. By a series of admirably contrived experiments on animals Paul Bert proved that compression caused no ill-effect until the amount of oxygen dissolved in the blood was sufficient to act as a tissue poison, that pathological accidents occur only after decompression, and are due to bubbles of nitrogen appearing in the blood and interfering with the circulation, and that these effects can be prevented by making the rate of decompression slow enough. In 1899 Lorrain Smith greatly advanced our knowledge of oxygen poisoning, and in 1907 Vernon made the important discovery that oil or fat exposed to air takes up in solution over five times the volume of nitrogen and oxygen that water does. On the direct effects of high pressure Dr. Hill had

some interesting remarks to make. As their experiments showed that dogs and cats and monkeys could be safely decompressed at a rate of 20 minutes per atmosphere from 100 lb., he and his colleague Greenwood went under pressure themselves to the extent of between 3 and 5 atmospheres, and were safely decompressed at the same rate. They found that there was no sense of pressure. The voice became very high-pitched and nasal in quality, whispering and whistling being impossible. They collected and analysed their alveolar air whilst in the caisson and found that the percentage of CO_2 fell as the pressure rose. Respiration is regulated by the quantity of CO_2 in the alveolar air, which, under normal pressures, is about 5 per cent. At a pressure of + 75 lb. it was found to be only 0·9 per cent. Within the limits of Dr. Hill's experiment the variation in pressure was such that the product of the percentage of CO_2 in the alveolar air and the number of atmospheres pressure was always the same, thus ensuring a constant concentration of CO_2 in the blood passing through the respiratory centre in the brain. In order to discover the best method of decompression, Dr. Hill and Mr. Greenwood studied on themselves the nitrogen saturation of the kidney. One of them drank two pints of water and half an hour later was compressed to + 45 lb. He then emptied his bladder and ten minutes later emptied it again. The urine filled a glass receiver which was sealed, and the gases were extracted from it afterwards by the gas pump. By this device samples of urine actually secreted in definite intervals, after a given pressure limit had been reached, were available for analysis. The results showed that the kidney, in a state of activity, is about saturated in 10 minutes. The observers were decompressed at a rate of 20 minutes per atmosphere, and their urine showed that desaturation of the kidney lagged behind the fall in pressure. Dr. Hill doubts the statement that the blood is completely desaturated during its passage through the lungs. The practical conclusions to which Dr. Hill comes are that while decompression times at caisson works are often too short, those tabled by the Admiralty Committee are too long, particularly if the men be persuaded to exercise their bodies during decompression. He finds that the "stage" method of decompression can be made fairly safe and is better than the uniform method for caissons. Fat and heavily-built men, and all men with defective circulation or pulmonary ventilation, should be excluded from caisson work, while it should diminish the tendency to bubble formation if fat food were avoided by caisson workmen and the diet limited to lean meat, bread, and vegetables.

THE INFLUENCE OF DIABETES, GOUT, AND SYPHILIS ON THE TUBERCULOUS INFECTIONS OF THE HUMAN BODY.

AT a meeting of the Medical Society of London held on March 13th Dr. Nathan Raw read a paper on the Influence of Diabetes and Gout on the Tuberculous Infections of the Human Body. Diabetes has long been recognised as predisposing to pulmonary tuberculosis, although the former disease is also associated with bronchitis, pneumonia, and gangrene of the lung independently of tuberculosis. The resistance to microbic infection or activity is considerably lowered in diabetes, and particularly so to the action of the tubercle bacillus. In former years the lesions of the lungs in diabetes were ascribed to a non-tuberculous inflammatory process. Virchow was one of the first to demonstrate the true tuberculous character of the pulmonary affection, but the exact connexion of the two remains doubtful. Beyond the general statement made above—viz., that the resistance in diabetes to certain lung affections is lowered—Dr. Raw considers that the blood plasma is the determining factor in the growth and inhibition of bacterial infections, and supports his contention by experiments he has made with blood from cases of diabetes and gout. It is generally known that gouty individuals rarely suffer from tuberculosis, and Dr. Raw relates the results of growing pure cultures of tubercle bacilli on media which had previously been mixed with the blood of patients suffering from this disease. After four weeks' incubation, it appears, no growth was observed, and even after eight weeks there was only to be seen a slight irregular growth on the surface of the medium without any distinct clumps of bacilli. At the same meeting of the society Mr. D'Arcy Power read a paper on the Influence of Syphilis on Tuberculous Infections of the Human Body, in the course of which he arrived at some interesting conclusions. This is a wide subject and it requires further research, for the two diseases may occur under widely different conditions. That syphilis may predispose to tuberculosis is probable, and also acquired syphilis may render tuberculous lesions more active, but the influence of tubercle on syphilis has not been, as far as we are aware, clearly demonstrated. If medical practitioners who in the course of their duties are frequently brought into contact with such cases would record their observations some interesting results might be obtained. There is also here a large field open for laboratory research, which would materially help to clear up the uncertainty which now prevails.

DEATH OF PROFESSOR JOHN ATTFIELD, F.R.S.

THE announcement of the death of Professor John Attfield, F.R.S., will be received with very genuine regret by members of the medical, chemical, and pharmaceutical professions. Professor Attfield was for a good many years the adviser on pharmaceutical subjects to the General Medical Council, and in the 1898 edition of the British Pharmacopœia the Council expresses its indebtedness to him both for his scientific and for his literary services. He had at one time a large consulting analytical practice, and was an authority on questions of food and water-supply. His book on "Chemistry, General, Medical, and Pharmaceutical," is still a favourite, particularly with pharmaceutical students. He was professor of practical chemistry at the Pharmaceutical Society from 1862–96, his appointment previously being that of demonstrator of chemistry in St. Bartholomew's Hospital.

SMALL-POX IN BURY AND WIGAN.

A LOCAL correspondent writes: "Two new cases of small-pox were notified in Bury on March 14th, and the patients were removed to the Ainsworth Hospital. Two further cases were reported on the 15th, making nine in all. On the same day the operatives at the cotton mill where all the sufferers were employed refused to start work. The mills are being disinfected, and there is a great demand for vaccination. A further case, a man employed at the same mill, is suspected of having caught the infection. In view of the suspected origin of the outbreak the medical officer of health has recommended that all cotton operatives should be vaccinated or revaccinated. Three more cases are reported at Wigan, where there are now five persons suffering from the malady. The first patients removed to the local sanatorium were two men who had been employed at a mill at Ince. The latest victims are the wife and daughter of one of the men and a married woman who had visited the house. The vehicle of contagion is believed to have been the imported cotton. So far, only one case of small-pox has been notified in Liverpool. Liverpool is, fortunately, one of the best

vaccinated cities in the kingdom, the 'conscientious objector' being there a *rara avis*." Under date March 21st he adds: "Since writing the above, I am informed that on March 16th eight new cases were reported at Bury, bringing the total to 20 since the first case was reported on March 7th. The outbreak appears to be rapidly assuming epidemic form. The woven cloth warps and wefts in several of the looms at the mill have been destroyed, and some 3000 pieces of finished cloth have been disinfected at the Ainsworth Hospital. All the patients are being removed to this building, where there is permanent accommodation for 35 patients, but foundations are in for temporary buildings by which in case of necessity the accommodation could be more than doubled." Only two new cases have been notified this week.

A PLEA FOR CHEESE.

WE have received from Major R. J. Blackham, D.P.H., R.A.M.C., a copy of a lecture on "Cheese in History, Commerce, and Dietetics," which contains many sensible observations in favour of including more cheese in the daily diet. After summing up the virtues of cheese he says very rightly that against its good qualities the only defects that can be urged are that it may be indigestible if improperly eaten or cooked, and that there is a popular prejudice which associates meat with wealth, cheese and oatmeal with poverty, and bread and water with criminals. He reminds us that cheese is nutritious, very wholesome, very cheap, keeps well even in the tropics, is a very compact and portable food, and it need not be cooked. He appeals to his medical colleagues to join in the crusade against the over-eating of meat and to induce their patients, occasionally at least, to substitute for the "meretricious attractions of the ill-cooked joint" the wholesome and far more nutritious qualities of good, sound, English or colonial cheese. Medical men, he adds, should certainly encourage amongst the so-called better classes the inclination towards the "simple life" which has now become more than a mere fashionable craze, for in matters of health a simple dietary has, in these strenuous days, much to recommend it. In cheese we possess a substitute for meat foods of value in domestic economy, but the considerations have to be borne in mind that to not a few cheese tends to become a monotonous diet and with some it will not agree. Flavour is of considerable physiological importance in dietetics.

TAKA-DIASTASE IN THE TREATMENT OF DIABETES MELLITUS.

Dr. E. J. G. Beardsley, writing in the *Therapeutic Gazette* of Feb. 15th, quotes with approval a remark to the effect that the best way to learn all about a disease is to see its development in a friend. This was his own experience with diabetes mellitus; the futility of our present available means of treatment was borne in upon him when he was confronted with the symptoms of this disease in a friend. As a result of several conversations with Dr. H. A. Hare he determined to test the effect of administering taka-diastase in the form of powder. The patient, a man aged 32 years, had been under treatment by various physicians on both sides of the Atlantic for about three years. The amount of sugar had varied from 3 to 9 per cent. When Dr. Beardsley first saw him he was very ill, unable to get up, troubled by intense hunger and thirst, passing about 200 ounces of urine per diem, and suffering from diarrhœa. The urine contained 4·6 per cent. of sugar with a large amount of acetone and diacetic acid. He was given taka-diastase in 5-grain capsules, one after each meal and at bedtime. During the first 24 hours of this new treatment, the urinary excretion fell to 130 oz., the sugar fell to 3 per cent., and the ketone products also decreased. This improvement continued, the output of sugar remaining at 3 per cent., although the total excretion of urine fell to 85 oz., and a much freer dietary was being permitted. After three months' treatment the excretion was still about 80 oz. a day, and the patient had put on weight and felt better in every way. Dr. Beardsley has had good results in four other cases: in one man, aged 36 years, a non-diabetic glycosuria disappeared completely; another man suffering from diabetes was so much improved that he gained 6 lb. in as many weeks, and went back to his work as a carpenter; a third patient (a woman aged 42 years, with 1·5 per cent. of sugar and intense pruritus vulvæ) was relieved of the itching, although the sugar rose to 3 per cent.; while the fourth, a case of alimentary glycosuria, was also greatly relieved. Dr. Beardsley found in all these cases that improvement ceased if the drug was stopped, but that no untoward effects were traceable to its administration. The number of cases is small, but in so desperate a disorder as pancreatic diabetes anything that holds out the faintest prospect of improvement is worthy of extended trial, and there is no doubt that other physicians will watch with eagerness, and we hope without disappointment, the effects of taka-diastase.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

The Material for Petrol Tanks.

RECENTLY a colleague consulted me on a peculiar trouble that he had with his car. It was a good car, of a well-known make, and when going went well, but at times the carburettor absolutely refused to flood, with the consequence that the car on such occasions also declined to go. At first the body builder was credited with the blame; it was alleged that the tank was too low, as the petrol was gravity fed; the petrol plug was tapped to take the end of the tyre pump, but even when the petrol was thus pressure-supplied at times the carburettor was starved. A double petrol pipe was then fitted, the pipes were moved, and even a larger one was introduced, and all without avail, and then the cause was indirectly ascertained by the fitting of a new tank. The old one was of galvanised iron, the new one of brass; with the change the trouble vanished. The galvanisation of the iron tank had worn off and the iron on the tank's mucous membrane or interior had scaled, and little bits of these foreign bodies entered the petrol supply-pipe and so acted like a calculus in the ureter, and stopped, until they were passed, the passage of petrol. The deduction is therefore that these vessels for storage of petrol should be made of either copper or brass, and any way not of galvanised iron. On most good cars I understand that this is the rule, though on some of the cheaper ones galvanised iron is employed.

Is the Petrol Tank an Integral Part of the Chassis?

This question arose out of the case just mentioned, as it was suggested that the petrol tank on the car in question may have been changed. I am given to understand that the petrol tank is an integral part of the chassis of a car, and if a chassis is bought the original petrol tank that was on the chassis at the time of purchase of the car is included and should go with the car.

Retreading of Tyres and the Proposition of the Challenge Rubber Mills.

Without question the most important item in the running of a car is the cost of tyres, and a point that frequently has to be settled is, Shall an old tyre be thrown away, or sold as old rubber, or is it worth retreading? If the tyre is much worn or has had a burst the mileage to be obtained from the repaired cover often makes the expenditure less remunerative than the cost of a new tyre would be. To meet this, the

Challenge Rubber Mills of Eagle Wharf-road, City-road, London, N., offer that if a worn or burst tyre is sent to them they will report if it is worth retreading, and if not they are agreeable to select from their huge stock of second-hand covers one that will stand retreading, and which they will guarantee will give good service, and this they will do for the cost of the new tread, exchanging the scrap cover without charge; or they will accept the old cover in part payment for a sound second-hand cover that does not require a new tread. This firm have large works, where every process, including that of the preparation of the retreading compound, is carried out; they are thus in a position to give good workmanship and quality of material, and from what I have heard from motorists who have had tyres retreaded there this proposition is well worthy of the fullest consideration. This firm also market an all-rubber inner tube which they guarantee up to 10,000 miles if run within 12 months, and during that period they repair punctures free and also reseat valves. Their combination tube and shield is reinforced on all sides except the tread, which is of all rubber for the purpose of expansion and resiliency, and this is protected by a rubber-covered fabric shield, which is light and easy to fit and is practically unpuncturable.

The Licence for Electric Cars.

Under the terms of the Treasury regulations any car deriving its motive power otherwise than from an engine worked by cylinders is deemed to be of a horse-power exceeding 12 but not exceeding 15, which means a tax of £4 4*s.* to the general public. Recently at the Marylebone police-court an owner of an electric car which was supposed to be of 4½ horse-power was summoned for only taking out a licence for £2 2*s.*, while under the regulations it should have been one for £4 4*s.* It was, however, suggested that the unit of horse-power for the purpose of any rate of duty under the Finance Act of 1910 shall be calculated in accordance with the regulations made by the Treasury for the purpose, and it was maintained that the Treasury should make regulations by which the unit of horse-power could be worked out, and that any way in this case it was not fair to fix an arbitrary and excessive horse-power. Finally, the representative of the Excise Department of the London County Council withdrew the summons. Probably a decision will eventually be arrived at under which owners of low-powered electric cars will not have to pay as if they had a 12 to 15 h.p. car.

A Useful Fixed Cut-out Switch.

Frequently, if one of the cylinders on a multicylinder car is missing fire, a screwdriver or spanner is used to cut out each plug in turn, and thus the one that is giving trouble is ascertained. In doing this it is possible to get a shock, or even if this is avoided the make-shift method is rather clumsy. Messrs. Brown Brothers of Great Eastern-street have introduced a well-insulated little device, known as the Tangye cut-out switch, which is inexpensive, and is intended to be permanently fixed in position, one on each plug, and by this means, without any trouble, the plugs can each be separately cut out and the offending one detected.

The "Motor" Doctor's Edition.

Our contemporary the *Motor* devoted its issue of March 14th especially to the requirements of the medical profession in things motoring. The advertisers entered into the spirit of the issue, one of them catching attention with an opening remark upon "cerebral tumour." Any professional man contemplating the purchase of a car may get some useful information from the number in question.

Free Motor-car Insurance Policy.

In connexion with their motor tyres, Messrs. Pirelli, Limited, of 45, Basinghall-street, London, E.C., are offering a free motor-car insurance policy against accidental damage to the car and accessories, accidental damage whilst in transit by road or rail, wilful and malicious damage, and cost of carriage to or from repairers, &c. The policy is issued by the London and Lancashire Life and General Assurance Association, Limited.

THE REGISTRAR-GENERAL'S ANNUAL REPORT FOR 1909.

I.

THE seventy-second annual report of the Registrar-General of England relating to the year 1909 has recently been issued by H.M. Stationery Office. It will be remembered that the corresponding report for 1908 appeared within 12 months of the close of that year. The needful preparations for the census taking of next month must, however, have absorbed a large share of the time of the Registrar-General's staff, and in such circumstances the impracticability of completing the volume within a similar period may reasonably be accounted for.

In his prefatory remarks Mr. Bernard Mallet draws attention to certain changes now introduced in the form of his report. For several years past the several sections dealing with the registration of births, deaths, and marriages have been authenticated by the Registrar-General himself, whilst the analysis of causes of death has formed the subject of a letter addressed to his chief by the medical superintendent of statistics. In the present volume the Registrar-General contents himself with a brief address officially presenting the report to the President of the Local Government Board and discussing the changes that will appear in the present and in future numbers of the series. The statistical portion of the report is dealt with in detail by Dr. T. H. C. Stevenson, the statistical superintendent, who thus becomes virtually responsible for the accuracy of the entire report. In the Registrar-General's opinion this arrangement will enable the statistics to be treated as a whole, and in a clearer and more consecutive manner than before, the overlapping and repetition in the mortality sections which, under the old system, were unavoidable now disappearing.

Improvements to be Made in Future Reports.

On the score of practical utility English national statistics are sometimes adversely criticised, because of the lack of uniformity among publications issued by the various State departments. From circumstances beyond departmental control the vital statistics of the General Register Office must be regarded as in one sense defective because of want of correspondence between the registration areas to which they relate and the administrative areas which have been established throughout the country for sanitary purposes. Sir William Dunbar, in particular, always deplored the persistence of this anomaly during the period when he was Registrar-General, and several of his most recent reports attest the fact that in his time much was done to adjust anomalies of this kind which could not be entirely removed except by the amendment of statute law. Mr. Mallet may be congratulated on being able to record that since the issue of his previous report all administrative difficulties have been overcome and that certain far-reaching improvements will be introduced into the report for the first year of the new decennium. The Registrar-General informs his readers that in considering the changes now decided upon his main object has been to secure coördination between the statistics published by his authority and those of other departments of the State, as well as those of other countries, thus rendering the official returns of greater use than before, not only to those engaged in public health administration but to scientific inquirers generally.

Among the changes above alluded to the most important would appear to be the substitution in the annual reports of local government administrative areas for registration or Poor-law counties and districts. For reasons given in a previous report[1] the statistics must continue to be collected for registration areas as long as the present Registration Act remains in force; but after the close of 1910 these returns will be rearranged in the central office and published according to administrative areas. It is believed that by this and certain other modifications in the annual report the statistics will be brought into line not only with those of the annual summary, but also with the statutory returns of the local sanitary authorities furnished to the Local Government Board.

Another desirable change promised in future reports is the

[1] Registrar-General's Seventy-first Annual Report (1908), p. vi. (Cd. 4961).

distribution of births and deaths to the districts to which the mothers or the deceased persons respectively belonged. This method of distribution has not hitherto been adopted in the annual reports, although it has been partially carried out in the weekly and quarterly returns and in the annual summary, on the authority of unverifiable returns furnished by the local registrars. In order to secure the necessary uniformity of distribution in the national statistics arrangements have been made for reference to the districts to which they belong of all transferable deaths and institution births, and this rule will be observed both in the Registrar-General's official tables and in the tables prescribed by the Local Government Board for use by medical officers of health. The necessary information will be collected by the central office and furnished by that office to the local authorities throughout the country. Mr. Mallet acknowledges the readiness with which county medical officers of health have promised their coöperation in effecting this distribution in their own counties.

The need for rearrangement of local returns in order to publish them under administrative areas has necessitated recourse to the card system, and to the complementary device of electrical sorting, the cost of which in the present case has been materially reduced by the circumstance that the card system has already been adopted for the purpose of the approaching census. Lastly, the Registrar-General expresses the belief that the application of the foregoing methods to the elaboration of vital statistics will greatly increase their flexibility and their value, inasmuch as it will facilitate the making of special inquiries necessary from time to time for official purposes, or called for by scientific investigators outside.

Estimates of Population in Intercensal Years.

As the interval increases since the last census the trustworthiness of population estimates becomes annually more doubtful, whatever methods of estimation be employed. This applies more especially to estimates of the population of the large city areas, which have been considerably affected since 1901 by improvements in the means of transit. Like most of its predecessors, the coming census will almost certainly show that the previous rate of increase has by no means uniformly been maintained in the chief urban centres, but that the rate of increase has been accelerated in their outlying portions. The ultimate effects of these changes will, of course, depend upon the extent to which the municipal area of a large town represents the actual residence of the population in each case. It is obvious that the only remedy for the present uncertainty as to population lies in the more frequent enumeration of the people. The staff of the General Register Office is fortunate in possessing in Mr. A. C. Waters, F.S.S., a statistician of large experience and of conspicuous mathematical ability. By his many valuable contributions to the Royal Statistical Society Mr. Waters has shown his deep interest as well as his skill in the examination of statistical problems relating to natality and to mortality. The high value of his services has been repeatedly acknowledged by his official chiefs, and by none more appreciatively than by Sir William Dunbar, who in his last annual report as Registrar-General particularly directed attention to Mr. Waters's methods for estimating local populations in intercensal years. For years succeeding the date of the coming census this method will replace that at present in use for the estimation of local populations in the administrative areas of England and Wales.

Decline in Marriage-Rate.

The graphic representation of statistics is a feature of the Registrar-General's recent reports to which we have alluded approvingly on several previous occasions. In the present report this method has been considerably extended, and although to some persons the older tabular method appeals more strongly, we are convinced that the majority of readers will appreciate the further development of the graphic method. The first diagram in the present report is conclusive as to the still persistent depression of the English marriage-rate. From this diagram we learn that the rate of marriage, based on the total population at all ages and of both sexes, does not adequately express the real decline that has taken place. Accordingly an additional curve is inserted showing the rate in terms of marriageable persons living; and, thus estimated, the rate in all but one of the last 29 years is shown to have been below the rate of 1876–80, taken as a standard.

(To be concluded.)

MEDICINE IN THE ENCYCLOPÆDIA BRITANNICA.

IV.[1]—*Food and Drugs.*

THE History of Adulteration affords the theme of one of the most interesting and best written articles turning upon food questions in the Encyclopædia. It is contributed by the well-known analyst, Mr. Otto Hehner, who shows a very intimate acquaintance with the subject, not merely from the analyst's point of view, but from the public point of view also. Mr. Hehner has worked hard at the administrative side of the subject, and what efficiency the present Act possesses may be attributed to the clear representations which he amongst others has made from time to time before Royal Commissions and Departmental Committees. Mr. Hehner was at one time associated with Dr. Hassall, who in the "fifties" (that is to say, before any Food Act existed) was commissioned by the Founder of this journal to extend his microscopical methods of examination, coupled with chemical analysis, to articles of food in general. The result was that, as Mr. Hehner writes, "for a period of nearly four years reports of THE LANCET Analytical Sanitary Commission were regularly published, the names and addresses of hundreds of manufacturers and tradesmen selling adulterated articles being fearlessly given. The responsibility incurred was immense, but the assertions of the journal were so well-founded upon fact that they were universally accepted as accurately representing the appalling state of the food-supply." Here was the beginning of a serious attempt to protect the public against poisonous and fraudulent practices connected with food-supply. In consequence of THE LANCET'S disclosures a Parliamentary Committee was appointed in 1855, the labours of which resulted in 1860 in the Adulteration of Food and Drink Act, the first Act that dealt generally with the adulteration of food. From that time legislation gradually advanced until the Act which is now in force passed in 1899. As Mr. Hehner points out, however, this was not a comprehensive Act superseding the previous Acts, but was an additional and amending one, so that at the present time four food Acts in reality run parallel and are together in force, rendering the subject from a legal point of view one of extreme complexity. Still more unfortunate was it that, while the Act of 1899 was made to embody the most important recommendations of the Food Products Committee, one very serious exception was made—viz., the appointment of a board of reference which should deal with difficulties as they arose, guide analysts and public authorities in fixing limits for articles (other than milk and butter), and take up such important questions as the use of preservatives and colouring matter in food. The Act, however, recognised "the importance of a regular and conscientious control of the public food-supply by the local authorities," because certain sections in it gave to the Local Government Board and the Board of Agriculture "a roving commission to see that the Acts are properly enforced throughout the kingdom so as to apply the Acts more equally throughout the country than heretofore, and in default of local authorities carrying out their duties empower the Government departments mentioned to execute and enforce the Acts at the expense of the local authorities." The Local Government Board has recently taken a practical interest in this matter and has created a new department presided over by an official inspector of food, and the department has added to its resources an analytical laboratory. In spite of imperfections in the Act the effect of the application of the food laws has been entirely beneficial. This is Mr. Hehner's view and we endorse it entirely.

In his references to the working of food Acts elsewhere Mr. Hehner deals chiefly with the National Pure Food Law of 1907 in the United States, which represents, perhaps, the strongest legislative step that has so far been taken in connexion with food-supply. This law provides an elaborate set of food definitions and standards, so that for each of the more important articles of food an official definition of its nature and composition has been established. These definitions are, he considers, of the utmost value to food officers, manufacturers, and merchants, not only in the United States but throughout the world.

[1] Articles I., II., and III. were published in THE LANCET of Feb. 25th (p. 530), March 4th (p. 609), and March 11th (p. 692), 1911, respectively.

The paragraphs on particular articles adulterated will be useful in conveying to the public in simple terms in what direction the practice of adulteration is a favourite field. In the note on beer there is an obvious misprint; bisulphate of lime should be bisulphite. In the article on spirits the writer refers to the report which appeared in THE LANCET in 1902 on "Brandy, its Production at Cognac and the Supply of Genuine Brandy to this Country," which, he says, served as a stimulus to public analysts to analyse commercial brandies, and convictions of retailers for selling so called brandy followed. It may be remarked that, while that report pointed out what were the chemical characteristics of Cognac brandy, it did not lay down figures in terms of ethers with the view of setting up a standard. The point under consideration was whether the brandy sold in this country as Cognac brandy was entitled to the description Cognac. In another section is a good article on brandy by P. Schidrowitz.

We quite endorse the view of the writer as to the adulteration of drugs. It is satisfactory, he says, to record that but very few of the great number of drugs included in the pharmacopœias are liable to serious adulteration, and there are very few cases on record during recent years where real fraudulent adulteration was involved. The numerous preparations used by druggists are mostly prepared in factories under competent and careful supervision, and the standards laid down in the British Pharmacopœia are, broadly speaking, carefully adhered to.

The article on Dietetics is fully in accord with modern knowledge, and is contributed jointly by W. O. Atwater, who is in charge of nutrition investigation in the United States Department of Agriculture, and R. D. Milner of the same department. They have compiled an interesting table based on modern researches, giving the amounts of nutrients and energy furnished for 1*s.* in food materials at ordinary prices.

Hygiene is defined in a short paragraph, the reader being very properly referred to the various branches of this big subject under the specific headings of dietetics, food, food preservation, adulteration, water, heating, ventilation, sewerage, bacteriology, housing, cremation, and so forth; while for legal enactments which concern the sanitary well-being of the community the reader is referred to the article on Public Health.

As an example of the care that has been taken to keep the scientific side of the Encyclopædia in touch with modern developments, we may refer to the series of monographs on drugs. They are not, as a rule, long dissertations, but they contain a *résumé* of the pharmacology of the particular drug under description. In the article on Ergot the fact that the extremely complex composition of this drug has been studied in great detail is cited, and the best modes of administration are given.

In the article on Cod liver Oil the researches on the composition of this complex substance are annotated, and it may be noted that the question of the value of active principles is ignored, and the correct statement is made that cod-liver oil has been proved to be more readily absorbed than any other oil. Further, we are glad to note that it is remarked that other oils or combinations of oils promise to give the same nutritive effects.

The various subjects, here only briefly alluded to, are brought well up to date, and considering how rapidly scientific methods advance and how quickly new materials come into existence the monographs on the whole show creditable performance upon the part of the contributors.

MEDICINE AND THE LAW.

Medical Examinations under the Workmen's Compensation Act.

COMMENT was made in a leading article in THE LANCET of Sept. 17th, 1910, p. 899, upon the hearing of an application in the Westminster County Court to discontinue the payment of compensation made to a workman accidentally injured, on the ground that he had refused to submit himself to medical examination on behalf of his employers when asked to do so. Since then another case heard about the same time in the county court, and raising the same point upon similar facts, has been the subject of argument in the Court of Appeal, as well as a second in which a slight variation of the facts afforded the opportunity for further discussion of the principles involved. These two cases, besides appearing in the various law reports, will be found in close proximity to one another in "Butterworth's Compensation Cases" for the current year, or rather in the convenient "Quarterly Advance Sheets" in which these are issued before the year is completed. It will be seen that the case of Warby *v.* Plaistowe and Co. is precisely like the one to which our leading article referred, but it escaped comment at the time because his honour Judge Bray did not decide it at the time of the hearing of the argument before him, but waited till the long vacation before delivering in writing a judgment which, it may be mentioned, the Master of the Rolls described in the Appeal Court as an "admirable" one.

The applicant, Warby, to whom Messrs. Plaistowe and Co. were admittedly liable in respect of injuries received through an accident, was required by them to submit himself for examination by their medical man, Dr. R. J. Collie, either at his house in Porchester-terrace, Hyde Park, or at the workman's home in Eden-grove, Holloway. The workman, on the advice of his solicitors, refused to be examined except at their office, and in the presence of a member of their firm. The county court judge had to decide whether this constituted a refusal on the part of the workman to submit himself to a medical examination, or whether the conditions imposed were reasonable on account of the alleged conduct of Dr. Collie towards workmen on other similar occasions, the allegations made being to the effect that Dr. Collie treated injured workmen as if they were malingerers, and behaved towards them in a brutal manner. In his honour's judgment he assumed in the first place that the complaints against Dr. Collie were well founded, and decided that even if they were so the presence of his solicitor would not be a more efficient protection to the workman than that of his medical attendant, who could interfere, if necessary, during the examination, who would observe, far more intelligently than a solicitor, what was being done and the workman's conduct, and who could make a note of what was said and what passed. "I have assumed," Judge Bray said, "that the charge of brutality and the other allegations were well founded; I am satisfied, however, that they were not. There was no real foundation, in my opinion, for the charge of brutality." He referred to the case of Perry (reported as Terry) *v.* The London County Council (1910) in the *Times* of August 4th, and to Judge Woodfall's decision on that occasion (commented upon in the leading article referred to above), to the effect that the charges against Dr. Collie were without foundation, and he came to the conclusion that there was a refusal on the part of Warby to submit himself to examination and that his application to have his weekly payments continued must fail. It may be mentioned that early in his judgment Judge Bray stated that at the first hearing of the application before him in June he had suggested that Dr. Collie should examine the applicant at the court, that this had been done, and that Dr. Collie's report was that in his opinion the man was still totally incapacitated. In the Court of Appeal, after hearing argument on the part of the workman, and without calling upon counsel for the employers, the Master of the Rolls gave judgment dismissing the appeal and saying that "It is rather curious that in the case we have just decided (Harding *v.* The Royal Mail Steam Packet Company referred to below) I should have expressed the opinion that it cannot be too well known that a solicitor's office is not, in ordinary circumstances, a proper place at which to hold a medical examination of a workman, and I can only emphasise again what I there said on that point." His lordship went on to observe that in the case before the court there had been an attempt by the workman's solicitors to dictate to the employers where the man should be examined by their medical man, and after calling attention to the wording of the paragraph (14) in Schedule I. of the Act governing the matter he pointed out that the Act "gives the employer the sole right to select the medical man who shall examine the workman; it does not give the workman any right to impose conditions such as are claimed here."

In the other case to which reference has been made above, and to which the Master of the Rolls alluded in his judgment, that of Harding *v.* The Royal Mail Steam Packet Company, judgment was given on the same day as in Warby *v.* Plaistowe and Co. In it Dr. Collie was again

the medical man by whom the examination was to be made, but the condition which the workman wished to impose was different, in that his solicitors offered that he should attend for examination either at their office (Lime-street, E.) or at the surgery of the medical man who had attended him, but not at Dr. Collie's house in Porchester-terrace, although the employers' solicitors sent 10*s.* to cover the workman's fare to that address. His honour Judge Bacon held, on the facts, that the workman had not refused to submit himself to a medical examination, and the court dismissed the employers' appeal. The county court judge took no note of the evidence upon which his decision was based, which was referred to in the Court of Appeal as an unfortunate circumstance, but the principle laid down by the Master of the Rolls was that "as long as a man offers to submit himself to examination, and is not unreasonable in saying where it shall take place, he cannot be punished in the manner in which he would be if he acted otherwise." His lordship further said that it was a question of fact. "Was the refusal to go to the employers' doctor's surgery so unreasonable as to amount to a refusal to submit to examination, or to be obstruction?" His lordship could not say that it was, but it was a question for the learned county court judge. "Both parties took a wrong view." It will be seen from this that the Court of Appeal has not laid down that the examination must take place in the consulting-room of the medical man who is treating the workman if the latter so desires, but only that if the workman offers to submit himself to examination there, and refuses to attend at the house of the employer's medical man, he may be acting reasonably and may not be refusing to submit to examination. What is or is not reasonable in such circumstances is a question for the county court judge, which he will have to determine after considering the facts of the individual case if the question is brought before him.

Apart from the interest of these cases to medical men who may be called upon to make such examinations as Dr. Collie was asked to make, it is satisfactory to note that that gentleman's conduct has been completely vindicated by both Judge Woodfall and Judge Bray, in whose courts discussion took place with regard to it, and before whom the serious allegations referred to with regard to it were made.

Bell v. *Hunt: The Loss of a Sightless Eye.*

The principles under which compensation for incapacity is awarded under the Workmen's Compensation Act have now been laid down in so many decisions of the Court of Appeal and House of Lords that points practically unaffected by precedent do not often arise. One such appears, however, to have revealed itself in the claim of a workman named Bell, an edged-tool moulder, employed by Messrs. William Hunt and Sons, Limited, a Staffordshire firm. Bell was injured in the course of his work in September, 1910, by a piece of brick which struck his left eye, necessitating its removal. As a matter of fact, however, the eye thus removed had been already injured 15 years before and the sight of it had then been totally destroyed, although this defect had not prevented the man from obtaining employment under Messrs. Hunt, who had not been aware of it. When, however, after his eye had been removed Bell had applied to Messrs. Hunt to take him back they had declined to do so, and he had met with a similar refusal from several other firms, none of which would engage a man having only one eye. The county-court judge at West Bromwich had found (1) that Bell had not full capacity to do his work; and (2) that the accident which caused the blindness was not that of September, 1910, but the one which happened 15 years before, and on these findings he had made an award in favour of the employers from which the claimant appealed. The Master of the Rolls and Lord Justice Buckley agreed with the county-court judge, the former saying that disfigurement as distinct from incapacity was not, speaking generally, within the Act, although he suggested that it might be, for example, in such a case as that of a parlour-maid, whose face might be so scarred by an accidental burning as to prevent her from obtaining employment on the ground of her appearance. The incapacity to work in Bell's case, however, was in no sense due to the accident in September, 1910, which only made obvious the existence of prior incapacity, and the employers were not to be held liable because the workman could no longer conceal his defect. From the judgments of his colleagues Lord Justice Fletcher Moulton dissented, referring to the question of compensation as depending, as a general rule, upon whether the workman had sustained an injury which lessened his earning capacity. With regard to a point which had been raised, that the workman, if compensated, would be reaping advantage from his own wrong in concealing his defect, his lordship questioned whether it was the duty of a workman to reveal his defects when applying for employment. In his opinion, the man impliedly represented himself as skilled, but made no representation as to how he obtained or retained his skill. If an employer attached importance to unimpaired physical qualifications it was for him to make inquiry with regard to those of the workman whom he proposed to engage. Bell was justified in holding himself out when he obtained employment as capable of doing his work, and in his lordship's view the case ought to be remitted to the county-court judge to assess damages. In view of this division of opinion, which had as its result judgment for the respondents, the employers, owing to a majority of the court being in their favour, the case seems likely to be heard of again, and comment upon it, if any be needed, must be deferred until the House of Lords has had the opportunity of reviewing the effect of a combination of unusual circumstances not likely frequently to recur.

BRITISH MEDICAL BENEVOLENT FUND.

AT the February meeting of the committee 27 cases were considered and grants amounting to £223 made to 19 of the applicants. Appended is an abstract of the cases relieved.

Daughter, aged 40, of late F.R.C.S. No income; delicate health and dependent on mother, whose income is only 10*s.* a week. Relieved 11 times, £98. Voted £12.

M.B., C.M. Edin., aged 61. No income and incapacitated by hemiplegia; four children, all dependent. Voted £12.

Widow, aged 52, of L.F.P.S. Glasg. No income; takes in boarders and receives a little help from a daughter earning 14*s.* a week; health very delicate. Relieved seven times, £70. Voted £12.

Widow, aged 37, of L.R.C.P., L.R.C.S. Edin. Unprovided for at husband's death about ten years ago and has supported herself by nursing; two children. Now asks for a little help towards the school fees of the elder daughter, aged 15. Voted £10.

Widow, aged 62, of M.D. Lond. At husband's death 12 years ago took a boarding house, but has been obliged to exhaust all her capital in order to meet expenses. Voted £12.

Daughters, aged 70 and 63, of late M.R.C.S., L.S.A. Were comfortably provided for at father's death 20 years ago, but made very unfortunate investments and are now practically penniless. Voted £18.

Widow, aged 65, of M.R.C.S. Husband's means were exhausted by a long illness, ending in death a few months ago, and applicant has chronic glaucoma. No children. Voted £12.

Daughter, aged 62, of late M.R.C.S., L.S.A. Since father's death in 1903 has held situations as cook-housekeeper, &c., but is now unable to obtain employment. Voted £12.

M.R.C.S., aged 64. Has completely broken down in health and is practically penniless. Voted £12.

Daughter, aged 49, of late M.R.C.S. Quite unprovided for at father's death and has maintained herself for nearly 20 years, but is now in a delicate state of health and can only undertake occasional and light work. Voted £12.

M.R.C.S., L.R.C.P., aged 51. Is in pecuniary distress through no fault of his own and asks for a little help towards unavoidable expenses before going abroad. Voted £5.

Widow, aged 49, of M.B. Durh. At husband's death 20 years ago started a nursing home and supported herself and a widowed mother, but is now broken down in health and requires a rest. Two children, both delicate and barely self-supporting. Relieved three times, £29. Voted £12.

Widow, aged 66, of L.R.C.P. Edin. Has given music lessons and taken lodgers, but is now in bad health and dependent on a daughter earning £1 a week. Relieved six times, £60. Voted £12.

Widow, aged 60, of M.D. Glasg. No income and dependent on a son who can ill afford to help. Relieved once, £12. Voted £12.

Daughter, aged 56, of late M.R.C.S. Endeavours to support herself by letting lodgings but finds it impossible to meet unavoidable expenses. Relieved four times, £55. Voted £10.

Widow, aged 69, of L.F.P.S Glasg. Husband's means were exhausted by a long illness which preceded his death and applicant endeavours to maintain herself by taking boarders; health indifferent. Relieved three times, £22. Voted £12.

Daughter, aged 49, of late M.R.C.S. No income; health too delicate to admit of employment and dependent on a brother-in-law whose earnings are extremely small. Relieved twice, £24. Voted £12.

Widow, aged 65, of L.R.C.P., L.R.C.S. Edin. Is quite penniless and dependent on a married son earning £1 a week. Relieved 12 times, £129. Voted £12.

Widow, aged 45, of L.R.C.P., L.R.C.S. Edin. No income and children unable to help; is incapacitated by a chronic complaint and practically dependent on help given by this fund and another society. Relieved 15 times, £172. Voted £12.

Contributions should be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Chelmsford Rural District.—Dr. J. C. Thresh, who takes much interest in the question of housing in rural districts, thinks that the powers conferred by Sections 16 and 17 of the Housing and Town Planning Act, 1909, are not likely to prove of much service at present since the council here in question is reluctant to accept the responsibility for closing orders. As regards the power of appeal to the Local Government Board which is given to owners Dr. Thresh regards it as more disconcerting than an appeal to the magistrates or court of sessions would be. He reports that more cottages are required in several of the parishes, but the council is not inclined to take action in face of the fact that if the farmers provided proper accommodation for their labourers there would be no necessity for action on the part of the council, which objects, and Dr. Thresh thinks naturally, to subsidise the land by providing cheap cottages for the labourers employed thereon. Another objection in his opinion is the unfairness of saddling any parish or area with rates in order that a few of the inhabitants may occupy cottages at a low rental. The way out of the difficulty is, Dr. Thresh thinks, for the council to provide where required a few cottages with three bedrooms and to let them at a rent which will involve no loss to the ratepayers. This suggestion seems to accept it as established that the labourers could and would pay the rent necessary to prevent loss; in other words, it raises a large and somewhat difficult problem. But there can be no doubt as to the very great difficulty of adequate housing in rural districts, and Dr. Thresh refers to an illustrative case which occurred at Ingatestone, where there were several cottages belonging to three different owners which were considered unfit for habitation. Two of the owners offered to close their cottages at once if the council would serve closing orders, an action which would have involved turning eight families into the street. The owners refused to make any structural alteration and presumably the council refused to issue the closing orders and the cottages remain occupied. There seems, however, prospect of a solution so far as a part of Ingatestone is concerned owing to the offer of a local builder to erect as many cottages as would be required, not exceeding 50, provided that the council would offer facilities for drainage and would carry the water main to the site, conditions to which the council agreed subject to the Local Government Board sanctioning a loan for sewer extension. But here again, to some extent at least, there comes in the principle of the ratepayers helping the farmer to house his labourers, inasmuch as it does away with the expense of sinking wells and cesspools. Dr. Thresh furnishes in another part of his report an example of the facility with which diseased meat may find its way into butchers' shops. At two slaughter-houses in the district there is a suspicion that unsound animals are slaughtered, and in one of these places the carcass of a cow which had suffered from a disease rendering it unfit for human consumption was found. It was alleged that the cow had been fetched from a farm and slaughtered for the sale of its hide, and the flesh was, the butcher stated, being sent to the kennels. The clerk to the district council was consulted as regards seizure, but in his opinion it was not a legal offence to have either a diseased animal or a diseased carcass in a slaughter-house, and if it was diseased or unfit for human food there should be evidence that it was intended for human consumption, otherwise the owner might claim damages from the council. It is difficult to find fault with this reasoning, but clearly the law requires amendment to cover obvious risks such as this, more especially as in a very large number of sanitary districts, whether they be rural or small urban districts, meat inspection is not carried out, largely because neither the medical officers of health nor the sanitary inspectors have had any special training in meat inspection, and the district councils do not offer them any encouragement or facilities for acquiring such experience. Gradually we are moving forward, but at the present rate the current century will be far advanced before the inspection referred to is of much value.

Woking Urban District.—Dr. R. W. C. Pierce, reporting upon the housing of the working-classes in this district, states that the sanitary committee went thoroughly into the subject during the past year, and that their method of investigation consisted in taking the evidence of the officials as well as of several members of the public who had manifested an interest in the subject. Dr. Pierce, as the result of observations made, concludes that there are many families in the district who cannot, with due regard to the necessary expenditure on food and clothing, pay the rents prevailing in the district, and consequently they are obliged to share a house with another family, an arrangement which leads to overcrowding and other evils. The average rental (inclusive of rates) for a cottage with three bedrooms is between 7*s.* 6*d.* and 8*s.* 6*d.* a week, a rent which is obviously beyond the means of many of the labouring classes. Dr. Pierce regards it as an urgent necessity that the disproportion between the income and rent should be diminished either by providing cottages at a lower rental or by giving the labouring classes more constant and remunerative work, or by a combination of both methods. It seems that a row of cottages which was not being properly looked after by the owners was taken over by an association who let the houses to struggling and deserving families with very satisfactory results, lady visitors keeping a strict supervision over the cottages. The weekly rental of these eight cottages, which were taken over on lease, was formerly 7*s.*, but it has now been reduced to 6*s.* 6*d.*, the tenants earning from 16*s.* to 20*s.* per week. Lodgers are not allowed to be taken without consent, and a return of 3 per cent. only is expected from the association. Dr. Pierce suggests that other similar blocks of dwellings should be taken over by the council, and he thinks that self-contained cottage flats will meet a part of the existing need for cheaper dwellings. Gipsy encampments appear to cause some trouble in this district from the circumstance that some of them are pitched in low-lying and damp situations where slop and waste water cannot be properly disposed of. Moreover, the condition of the tents and vans is not satisfactory.

REPORTS OF SCHOOL MEDICAL OFFICERS.

The County of Berkshire.—Dr. Gerard C. Taylor, the school medical officer and county medical officer of health, reports that during the year 1910 there were 58 schools or departments closed owing to infectious sickness, 17 of these being closed by the medical officer of health with the approval of the school medical officer, and 41 by the local education authorities or school managers acting on the advice of the school medical officer. During the year material improvement was made in the lighting, ventilation, and heating of several of the schools. In the cloakrooms the indiscriminate use of the pegs is prevented by each child being required to use his or her duly numbered peg. As regards the playgrounds tar-paving is not made as much use of as could be desired. The total population of this administrative area is estimated at about 142,556, and the number of children on the rolls of the elementary schools is about 24,271, no children under 5 years of age being admitted. The actual medical inspection has been carried out by two assistant school medical officers, but both these resigned their posts during the year 1910, one to become county medical officer and school medical officer of Rutland, and the other to join the staff of the London Education Committee. In two instances gratuitous dental treatment has been provided, in one case the cost being borne by one of the managers, and in the other the managers have accepted the offer of a dental surgeon to treat the children gratuitously when sent to him by the parents, and the committee have placed a room in the school at his disposal. In another instance a nursing association, acting as a care committee for two schools in this area, have arranged with a dentist to inspect the children gratuitously and to undertake any necessary treatment for a small fee, to be paid by the parent. This local scheme will probably include the sale of toothbrushes at a small cost.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 7963 births and 5052 deaths were registered during the week ending March 18th. The annual rate of mortality in these towns, which had steadily declined in the five preceding weeks from 17·6

to 14·9 per 1000, rose again to 15·4 in the week under notice. During the first 11 weeks of the current quarter the death-rate in these towns averaged 15·9 per 1000, and the mean recorded rate in London during the same period was also equal to 15·9. The annual death-rates during last week ranged from 4·9 in Handsworth, 5·3 in King's Norton, 7·6 in Wallasey, and 8·3 in Northampton, to 21·9 in Sheffield, 22·5 in Middlesbrough, 22·7 in Plymouth, and 23·3 in Coventry. The 5052 deaths from all causes in the 77 towns showed an increase of 141 upon the number returned in the previous week, and included 695 which were referred to the principal epidemic diseases, against numbers increasing from 477 to 702 in the five preceding weeks; of these 695 deaths, 460 resulted from measles, 109 from whooping-cough, 44 from diphtheria, 42 from infantile diarrhœa, 22 from scarlet fever, 17 from enteric fever, and 1 from small-pox. The annual death-rate in the 77 towns from these epidemic diseases averaged 2·1 per 1000. The fatal cases of measles, which had steadily increased from 160 to 474 in the first ten weeks of the current quarter, declined last week to 460; the highest annual death-rates from this disease among the 77 towns last week were 3·8 in Coventry, 4·1 in Plymouth, 5·4 in Devonport, 5·6 in Wigan, and 8·0 in Sheffield. The deaths from whooping-cough, which had been 108 and 80 in the two previous weeks, rose again to 109 last week; they caused the highest rates last week, 1·7 in Wigan, 1·8 in Aston Manor, and 1·9 in Coventry and in West Hartlepool. The 44 deaths from diphtheria showed a further decline of 12 from the numbers in recent weeks; they included 13 in London and its suburban districts, 4 in Leeds, and 3 both in Bristol and in Sheffield. The 42 deaths of infants under 2 years of age attributed to diarrhœa, showed a further decline from the numbers in recent weeks, and were fewer than in any previous week of this year. The 22 fatal cases of scarlet fever also showed a further decline from the numbers in recent weeks; 4 were recorded in London and 2 each in Liverpool, Stoke-on-Trent, and Bury. The deaths referred to enteric fever, which had been 15 and 13 in the two previous weeks, rose to 17 last week, of which 3 occurred in Manchester, 3 in Leeds, and 2 both in London and in Portsmouth. The fatal case of small-pox occurred in London, and was admitted to hospital from Poplar. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospital, which had declined in the four preceding weeks from 1276 to 1166, had further fallen to 1121 on Saturday last; 146 new cases of this disease were admitted to these hospitals during last week, against 138, 129, and 120 in the three preceding weeks. These metropolitan hospitals also contained on Saturday last 920 cases of diphtheria, 822 of measles, 256 of whooping-cough, 32 of enteric fever, and 38 of small-pox. The 1419 deaths from all causes in London last week, an increase of 28 upon the number in the previous week, included 284 which were referred to diseases of the respiratory system, against numbers ranging from 421 to 318 in the four preceding weeks; 7 deaths were also referred to influenza. In the 77 towns 156 deaths from different forms of violence were registered during last week, against 173, 153, and 142 in the three preceding weeks; and 377 inquest cases were recorded. The causes of 46, or 0·9 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, Bradford, Newcastle-on-Tyne, Nottingham, Leicester, Salford, and in 47 other smaller towns; the 46 uncertified causes of death in the 77 towns last week included 9 in Birmingham, 4 in Stoke-on-Trent, and 3 each in Liverpool, Sheffield, and Preston.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 907 births and 617 deaths were registered during the week ending March 18th. The annual rate of mortality in these towns, which had steadily declined in the five preceding weeks from 19·8 to 15·9 per 1000, rose again to 16·8 in the week under notice. During the first 11 weeks of the current quarter the death-rate in these towns averaged 17·0 per 1000, and exceeded by 1·1 the mean rate during the same period in the 77 English towns. The annual death-rate last week in the eight Scotch towns ranged from 14·3 and 14·6 in Leith and Aberdeen to 20·1 in Dundee and 20·8 in Paisley. The 617 deaths from all causes in the eight towns last week showed an increase of 34 upon the number returned in the previous week, and included 66 which were referred to the principal epidemic diseases, against 76, 57, and 60 in the three preceding weeks; these 66 deaths were equal to an annual rate of 1·8 per 1000, which was 0·3 below the rate from the same diseases in the 77 English towns; the highest rates from these diseases in the Scotch towns last week were 3·3 in Paisley and 4·2 in Leith. Of these 66 deaths from epidemic diseases last week in the eight towns 36 resulted from whooping-cough, 11 from diarrhœa, 9 from diphtheria, 5 from scarlet fever, 4 from measles, and 1 from enteric fever, but not one from small-pox. The fatal cases of whooping-cough, which had been 32 and 36 in the two previous weeks, were again 36 last week, and included 15 in Glasgow, 5 each in Edinburgh, Paisley, and Leith, and 4 in Dundee. The 11 deaths attributed to diarrhœa (of which 10 were of infants under two years of age), exceeded the number in the previous week by 4, and included 5 both in Glasgow and in Dundee. The deaths referred to diphtheria, which had been 5 in each of the two previous weeks, rose to 9 last week; 4 occurred in Edinburgh and 3 in Glasgow. Of the 5 fatal cases of scarlet fever, 2 were recorded in Glasgow; and the 4 deaths from measles included 2 both in Glasgow and in Edinburgh. The death resulting from enteric fever was registered in Leith. The deaths referred to diseases of the respiratory system in the eight towns, which had declined in the four preceding weeks from 181 to 108, were 109 in the week under notice. The 18 deaths attributed to different forms of violence were within 2 of the number in the previous week; and 180, or 29 per cent., of the 617 deaths from all causes occurred in public institutions. The causes of 21, or 3·4 per cent., of the deaths registered in the eight towns during the week were not certified or not stated; in the 77 English towns last week the proportion of uncertified causes of death did not exceed 0 9 per cent.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,163,598 persons, 612 births and 389 deaths were registered during the week ending March 18th. The annual rate of mortality in these towns, which had steadily declined in the five preceding weeks from 24·1 to 19·3 per 1000, further fell to 17·4 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these 22 towns averaged 20·4 per 1000; the rate during the same period did not exceed 15·9 in the 77 English towns, and 17·0 in the eight Scotch towns. The annual death-rate during last week was equal to 20·8 in Dublin, 15·4 in Belfast, 16·4 in Cork, 10·7 in Londonderry, 15·0 in Limerick, and 15·6 in Waterford; in the 16 smallest of the Irish towns the mean annual death-rate last week was equal to 17·2 per 1000. The 389 deaths from all causes in the 22 towns last week showed a further decline of 42 from the numbers returned in recent weeks and included 21 which were referred to the principal epidemic diseases, against 41, 25, and 26 in the three preceding weeks; these 21 deaths were equal to an annual rate of 0·9 per 1000, which was 1·2 below the mean rate from the same diseases in the 77 English towns. Of these 21 deaths in the Irish towns from the principal epidemic diseases, 8 resulted from measles, 6 from diarrhœa, 5 from whooping-cough, and 1 each from scarlet fever and enteric fever, but not one either from small-pox or diphtheria. The 8 fatal cases of measles, of which 7 occurred in Dublin and 1 in Drogheda, showed an increase of one on the number in the previous week. The 5 deaths from whooping-cough showed a further considerable decline from the numbers in recent weeks; they included 4 in Dublin and 1 in Belfast. Five of the 6 deaths attributed to diarrhœa occurred in Dublin. The death referred to enteric fever was recorded in Dublin, and the fatal case of scarlet fever occurred in Belfast. The deaths in the 22 towns referred to diseases of the respiratory system, which had declined in the five preceding weeks from 141 to 100, further fell last week to 90. Of the 389 deaths from all causes last week, 105, or 27 per cent., were recorded in public institutions. The causes of 13, or 3·3 per cent.,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING FEBRUARY, 1911.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1911.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.‡									Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON...	4,912,054	28	597	562	—	53	1	21	272	10	1544	4·1	—	416	14	54	136	7	10	697	1·8	6259	17·6
West Districts.																							
Paddington	154,072	—	15	11	—	5	—	1	8	1	41	3·5	—	1	—	1	7	—	2	11	0·9	171	15·5
Kensington	185,607	—	19	25	—	—	—	—	10	—	54	3·8	—	23	—	5	11	—	3	42	2·9	222	16·8
Hammersmith	129,140	—	11	17	—	—	—	1	5	—	34	3·4	—	5	—	2	5	—	6	18	1·8	184	19·4
Fulham	186,190	—	21	31	—	1	—	1	12	1	67	4·7	—	6	—	1	6	—	3	16	1·1	202	14·8
Chelsea	75,673	—	12	8	—	—	—	—	1	—	21	3·6	—	4	—	1	1	—	—	6	1·0	98	17·5
City of Westminster	165,593	1	26	9	—	1	—	1	2	1	41	3·2	—	2	1	1	—	1	2	7	0·6	188	16·6
North Districts.																							
St. Marylebone	124,373	—	7	7	—	2	—	—	6	—	22	2·3	—	17	—	—	3	1	2	23	2·4	190	21·2
Hampstead	97,288	—	5	15	—	3	—	—	6	—	29	3·9	—	2	—	—	1	1	1	5	0·7	67	10·2
St. Pancras	238,187	—	17	29	—	3	—	1	9	1	60	3·3	—	23	—	1	4	—	2	30	1·6	345	19·8
Islington	355,550	—	46	34	—	7	—	—	9	—	96	3·5	—	24	2	3	4	1	4	38	1·4	451	17·1
Stoke Newington...	55,260	—	6	6	—	—	—	—	2	—	14	3·3	—	4	—	—	3	—	—	7	1·7	53	13·0
Hackney	242,388	—	30	17	—	1	—	—	21	—	69	3·7	—	21	—	3	12	—	1	37	2·0	295	16·6
Central Districts.																							
Holborn	52,484	—	2	7	—	—	—	—	3	—	12	3·0	—	2	—	1	—	—	1	4	1·0	74	19·8
Finsbury	93,874	—	6	9	—	3	—	—	12	—	30	4·2	—	20	—	2	4	—	2	28	3·9	147	21·1
City of London	16,069	—	1	—	—	1	—	—	2	—	4	3·2	—	—	—	—	—	—	—	—	—	31	27·6
East Districts.																							
Shoreditch	113,981	—	11	9	—	—	—	1	12	—	33	3·8	—	28	1	1	6	—	2	38	4·3	203	24·3
Bethnal Green	131,855	—	17	14	—	1	—	1	13	1	47	4·6	—	16	1	2	8	—	1	28	2·8	210	21·0
Stepney	316,269	26	37	47	—	5	—	1	23	—	139	5·7	—	46	—	2	4	—	10	62	2·6	446	19·2
Poplar	172,917	1	25	21	—	4	—	1	8	—	60	4·5	—	32	—	9	3	1	2	47	3·5	272	21·1
South Districts.																							
Southwark	212,560	—	29	23	—	2	—	—	20	1	75	4·6	—	17	—	3	12	1	2	35	2·1	321	20·6
Bermondsey	126,919	—	27	18	—	1	—	1	8	1	56	5·8	—	7	3	—	8	—	2	20	2·1	199	20·9
Lambeth	330,000	—	40	36	—	3	—	—	12	2	93	3·7	—	23	—	3	7	—	2	35	1·4	405	16·5
Battersea...	190,434	—	31	30	—	—	—	—	9	—	70	4·8	—	28	1	2	6	—	5	42	2·9	227	16·6
Wandsworth	314,087	—	60	39	—	4	1	1	13	1	119	4·9	—	34	2	5	6	—	4	51	2·1	356	15·6
Camberwell	289,130	—	23	29	—	—	—	1	17	—	70	3·2	—	24	1	2	3	—	3	33	1·5	361	16·9
Deptford	120,715	—	14	14	—	—	—	—	13	—	41	4·4	—	—	2	—	4	—	3	9	1·0	160	18·2
Greenwich	114,872	—	8	12	—	3	—	1	5	—	29	3·3	—	1	—	1	—	—	3	5	0·6	107	12·4
Lewisham	169,078	—	21	30	—	2	—	3	4	—	60	4·6	—	3	—	2	7	1	2	15	1·2	163	13·1
Woolwich...	137,489	—	29	15	—	1	—	5	5	—	55	5·2	—	3	—	1	1	—	—	5	0·5	151	15·3
Port of London	—	—	1	—	—	—	—	—	2	—	3	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard. ‡ Deaths from "typhus fever" and "other continued fevers" are not now distinguished in the Registrar-General's weekly returns; these two columns are therefore omitted from the Table.

of the deaths in the 22 towns last week were not certified either by a registered medical practitioner or by a coroner after inquest; the proportion of uncertified causes of death last week did not exceed 0·9 per cent. in the 77 English towns, and was 3·4 per cent. in the eight principal Scotch towns.

VITAL STATISTICS OF LONDON DURING FEBRUARY, 1911.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 4·1 per 1000 of the population, provisionally estimated at 4,912,504 persons in the middle of this year. In the three preceding months the rates were 5·0, 4·3, and 4·1 per 1000 respectively. The lowest rates last month were recorded in Westminster, St. Marylebone, St. Pancras, Stoke Newington, Holborn, the City of London, Camberwell, and Greenwich; and the highest rates in Fulham, Stepney, Bermondsey, Battersea, Wandsworth, and Woolwich. Twenty-eight cases of small-pox were notified last month, 26 belonging to Stepney, one to the City of Westminster, and one to Poplar. The prevalence of scarlet fever showed no variation from that recorded in the preceding month; among the several metropolitan boroughs the greatest proportional prevalence of this disease was recorded in Chelsea, the City of Westminster, Bermondsey, Battersea, Wandsworth, and Woolwich. The Metropolitan Asylums Hospitals contained 1224 scarlet fever patients at the end of last month, against 1727, 1574, and 1280 at the end of the three preceding months; the weekly admissions averaged 142, against 183, 155, and 130 in the three preceding months. Diphtheria was rather more prevalent than it had been in other recent months; this disease showed the greatest proportional prevalence in Fulham, Hampstead, Stepney, Bermondsey, Battersea, and Lewisham. The number of diphtheria patients remaining under treatment in the Metropolitan Asylums Hospitals at the end of last month was 902, against 866, 827, and 842 at the end of the three preceding months; the weekly admissions averaged 120 last month, against 106, 95, and 107 in the three preceding months. The prevalence of enteric showed a marked decline; among the several metropolitan boroughs this disease was proportionally most prevalent in Paddington, Hampstead, Finsbury, Poplar, and Greenwich. There were 41 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 88 and 68 at the end of the two preceding months; the weekly admissions averaged 7, against 16, 11, and 7 in the three preceding months. Erysipelas was proportionally most prevalent in Hackney, Finsbury, Shoreditch, Bethnal Green, Stepney, and Southwark. The 21 cases of puerperal fever notified during the month included 5 in Woolwich and 3 in Lewisham. Of the 10 cases notified as cerebro-spinal meningitis, 2 belonged to Lambeth.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex and age constitution of the population of the several boroughs. During the four weeks ending Feb. 25th the deaths of 6299 London residents were registered, equal to a corrected annual death-rate of 17·6 per 1000, against 15·8 and 16·5 in the two preceding months. The death-rates last month ranged from 10·2 in Hampstead, 12·4 in Greenwich, 13·0 in Stoke Newington, 13·1 in Lewisham, 14·8 in Fulham, and 15·3 in Woolwich, to 20·9 in Bermondsey, 21·0 in Bethnal Green, 21·1 in Finsbury and in Poplar, 21·2 in St. Marylebone, 24·3 in Shoreditch, and 27·6 in the City of London. The 6299 deaths from all causes included 416 which were referred to measles, 14 to scarlet fever, 54 to diphtheria, 136 to whooping-cough, 7 to enteric fever, and 70 (among children under two years of age) to diarrhœa and enteritis. No death from any of these diseases was recorded in the City of London; among the metropolitan boroughs they caused the lowest death-rates in Paddington, the City of Westminster, Hampstead, Greenwich, and Woolwich; and the highest rates in Kensington, Finsbury, Shoreditch, Bethnal Green, Poplar, and Battersea. The 416 deaths from measles were 268 in excess of the corrected average number in the corresponding period of the five preceding years; the greatest proportional mortality from measles last month was recorded in Kensington, St. Marylebone, Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, and Battersea. The 14 fatal cases of scarlet fever were 22 below the corrected average number, and included 3 in Bermondsey and 2 each in Islington, Wandsworth, and Deptford. The 54 deaths from diphtheria were 12 fewer than the corrected average number; this disease was proportionally most fatal in Kensington, Hammersmith, Finsbury, Poplar, Bethnal Green, and Wandsworth. The 136 fatal cases of whooping-cough showed a decline of 23 from the corrected average number; the greatest proportional mortality from this disease was recorded in Hammersmith, Hackney, Shoreditch, Bethnal Green, Southwark, and Bermondsey. The 7 deaths from enteric fever were 5 below the corrected average number; these 7 deaths belonged respectively to the City of Westminster, St. Marylebone, Hampstead, Islington, Poplar, Southwark, and Lewisham. The 70 deaths from diarrhœa and enteritis among children under two years of age included 10 in Stepney, 6 in Hammersmith, 5 in Battersea, 4 in Islington, and 4 in Wandsworth. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases (excluding diarrhœa) was nearly 50 per cent. above the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeon: H. W. Gordon-Green to the *Hampshire*, on recommissioning. Staff-Surgeons: W. R. Trythall to the *Aboukir*, on recommissioning; and A. Davidson to the *President*, additional, for three months' hospital course at the West London Hospital. Surgeons: A. S. Paterson to the *Hearty*; E. L. Markham to the *Triton*; H. B. German to the *Jupiter*, additional; E. B. Kenny to the *King Alfred*; H. Burns to the *Halcyon*, additional, for the *Spanker*, on recommissioning; A. Fairley to the *Aboukir*, on recommissioning; A. T. Rivers to the *Africa*; A. L. Robinson to the *Victory*, additional, for disposal on the *Dreadnought* paying off; and L. C. R. Robinson to the *President*, additional, for three months' hospital course at the Dreadnought Seamen's Hospital.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel C. Birt, Officer Commanding No. 14 Company, Royal Army Medical Corps and in charge of the Royal Infirmary at Dublin, has been selected for the higher rate of pay under Article 317 of the Royal Warrant, vice Lieutenant-Colonel J. M. Reid retired. Lieutenant-Colonel H. D. Rowan has been transferred from the Aldershot to the Southern Command and appointed in Charge of the Military Hospital at Tidworth Park, Salisbury Plain. Lieutenant-Colonel T. G. Lavie has been transferred from Newbridge to Queenstown. Lieutenant-Colonel S. Hickson, from Potchefstroom, has taken up duty at Wynberg. Lieutenant-Colonel G. E. Hale, D.S.O., has taken over command of the Station Hospital at Mhow. An exchange in the roster for service abroad has been approved by the War Office between Lieutenant-Colonel W. W. Pike, D.S.O., and Lieutenant-Colonel C. R. Tyrrell. Major H. A. Hinge, on completion of a tour of service in India, has been posted to the London District and appointed to the Recruiting Medical Staff. Major A. H. Morris has vacated his appointment in the Scottish Command and embarked for Malta to take over duty as Specialist Sanitary Officer. Major S. W. Sweetnam, commanding the Military Hospital at Kirkee, has been granted six months' leave of absence. Major J. C. B. Statham, on return from a tour of service in South Africa, has been appointed Clinical Pathologist to Queen Alexandra's Military Hospital at Grosvenor-road. Approval has been given to the grant of pay at higher rate under the provision of Article 317 of the Royal Warrant to the following majors with 20 years' service and qualified for promotion to the rank of Lieutenant-Colonel, viz.: E. E. Powell, E. McK. Williams, J. C. Connor, F. W.

Hardy, W. A. S. J. Graham, D. D. Shanahan, C. W. H. Whitestone, A. Pearse, and C. Dalton. Major C. A. Young has arrived home from Mauritius. Major W. J. Taylor has embarked for Sierra Leone. Major A. W. Bewley, commanding the Station Hospital at Landour, has joined for duty at Meerut. Captain J. E. Powell, Captain R. K. White, Captain E. B. Booth, and Captain W. G. Maydon have arrived home tour-expired from India. Captain G. F. Rugg has taken up duty as Specialist in Advanced Operative Surgery to the Fourth (Quetta) Division. Captain C. R. M. Morris, from Sialkot, has been granted six months' general leave of absence. The appointment of Captain E. Bennett as Adjutant to the Royal Army Medical Corps School of Instruction, North Midland Division, has been extended to Oct. 31st next. Captain H. O. M. Beadnell, on sick leave from India, has been reverted to the home establishment, tour-expired. Captain G. J. Houghton has embarked for a tour of service on the West Coast of Africa. Captain H. Simson, Specialist in the Prevention of Disease, has been transferred from Ahmednagar to Poona. Captain E. J. Kavanagh, from Ranikhet, has taken up duty at Delhi. Captain R. C. Hallowes, from Cairo, has been appointed for duty at Dundalk. Captain E. S. Worthington, M.V.O., Specialist in Advanced Operative Surgery, has been posted to the London District. Lieutenant G. F. Dawson has been transferred from Chakrata to Meerut Cantonment. Lieutenant T. B. Nicholls, from Tidworth Park, has taken up duty at the Military Hospital, Cairo. Lieutenant R. C. G. M. Kinkead, from Buttevant, has been appointed to the Cork District. Lieutenant J. C. L. Hingston has been posted to Madras.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions of officers of the Indian Medical Service:—Majors to be Lieutenant-Colonels: James Muir Crawford, Bawa Jiwan Singh, Ernest Gerald Robert Whitcombe, Charles Henry James, Frederick O'Kinealy, and Arthur William Treminbere Buist (dated Jan. 31st, 1911). Captains to be Majors: Corrie Hudson, D.S.O., Charles Frederick Weinman, Hamilton Maxwell Cruddas, George King, George Patrick Thomson Groube, Pandit Piaraylal Atal, William MacMullen Pearson, and David Claude Kemp (dated Jan. 28th, 1911).

Surgeon-General C. P. Lukis, C.S.I., Director-General of the Indian Medical Service, has been granted a good service pension, vice Surgeon-General Sir Gerald Bomford, K.C.I.E. Lieutenant-Colonel J. T. Calvert has taken over duty as Principal of the Medical College, Calcutta, during the absence on leave of Lieutenant-Colonel F. J. Drury. Lieutenant-Colonel C. F. Willis has been granted seven months' leave of absence home from India. Lieutenant-Colonel H. Handley, civil surgeon, on completion of special duty at the headquarters of the Second (Rawalpindi) Division, has been appointed Civil Surgeon of Lahore in succession to Lieutenant-Colonel D. T. Lane, transferred. Lieutenant-Colonel W. A. Sykes, Bengal, has arrived home on leave. Lieutenant-Colonel R. Robertson has joined at Madras. The services of Lieutenant-Colonel R. B. Roe, civil surgeon and superintendent of the Lunatic Asylum at Nagpur, have been placed at the disposal of the Army Department. Lieutenant-Colonel J. W. Rodgers, in medical charge of the 52nd Sikhs (Frontier Force), has been granted four and a half months' leave of absence from India. Major E. E. Waters has been appointed to officiate as Professor of Materia Medica and Second Physician at the College Hospital, Calcutta. Major H. Innes, civil surgeon at Mymensingh, has been appointed Civil Surgeon at Shillong, in succession to Major E. C. Macleod, appointed additional Civil Surgeon at Dacca. Major C. Donovan has been granted five months' extension of his leave by the Secretary of State, on medical certificate. Major E. D. W. Greig has been appointed to officiate as Director of the Central Research Institute at Kasauli during the absence on leave of Lieutenant-Colonel Sir David Semple, R.A.M.C. Major C. Duer has been confirmed in the appointment of Civil Surgeon of Simla (West). Major J. L. Macrae, civil surgeon of Coorg, has been granted privilege leave combined with furlough, for eight months. Major H. Boulton has been granted one month's extension of his leave of absence from India. Captain S. T. Crump, civil surgeon of Loimwe, has been appointed Resident Medical Officer at the General Hospital, Rangoon. Captain W. G. Hamilton has been appointed to officiate as Superintendent of the Presidency Jail at Calcutta during the absence on leave of Major J. Mulvany. Captain D. H. F. Cowin has taken over charge of the Dera Ghazi Khan District Jail from Captain A. K. Lauddie. Captain M. Foster Reaney has been appointed to officiate as Civil Surgeon of Nagpur. Lieutenant A. Mac D. Dick has been appointed Specialist in Advanced Operative Surgery to the Burma Division. Lieutenant R. B. Lloyd, officiating as medical officer in charge of the 58th Vaughan's Rifles, has been transferred to the 31st Duke of Connaught's Own Lancers at Kohat and attached for duty. Lieutenant B. Gale has been appointed as Specialist in Radiography and Electrical Science to the First (Peshawar) Division.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Sydney James Higgins to be Lieutenant (on probation) (dated Feb. 15th, 1911).

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd Northern General Hospital, Royal Army Medical Corps: James Martin Beattie to be Major (dated Jan. 2nd, 1911).

Attached to Units other than Medical Units.—Captain Cecil A. Corke resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated March 18th, 1911). Lieutenant Thomas Price Thomas to be Captain (dated Feb. 16th, 1911). Captain John G. Ronald resigns his commission (dated March 22nd, 1911).

For Attachment to Units other than Medical Units.—Robert Henry to be Lieutenant (dated Jan. 9th, 1911).

ROYAL ARMY MEDICAL CORPS EXAMINATION.

A competition for not less than 20 commissions in the Royal Army Medical Corps will be held on July 26th next and following days. Applications to compete should be made to the Secretary, War Office, not later than July 17th.

Correspondence.

"Audi alteram partem."

CHARLES BELL AND THE MOTOR AND SENSORY FUNCTIONS OF SPINAL NERVES.

To the Editor of THE LANCET.

SIR,—Professor A. Keith (THE LANCET, March 18th) bases his opinions principally upon: (1) Sir Charles Bell's letters published by Lady Bell in 1870 (Messrs. Murray); and (2) Alexander Shaw's "Narrative of the Discoveries of Sir Charles Bell in the Nervous System" (1839). I am, of course, well acquainted with both these publications, and while fully recognising their value as documents to character, I cannot accept them as scientific evidence relating to the physiological events of 1821–22. They, among other publications, were present to my mind when I stated that no evidence subsequent to 1822 can be accepted as "authoritative," and I hope that Professor Keith will believe that in my desire to limit the field of discussion to the scientific publications of the time I was doing my best—with due justice to "my countryman" as well as to Magendie—to keep the name of Sir Charles Bell as free as possible from the unfortunate polemics that arose after 1822, chiefly through the devoted advocacy of the two Shaws. And, with considerable knowledge of the facts, I deliberately repeat the statement that no publication subsequent to 1822 is to be regarded as authoritative; the case between Bell and Magendie as regards the nerve-roots is limited to the publications of 1811 and 1822. The tedious "narrative" promulgated by the younger Shaw in 1839, and adopted by Professor Keith as authoritative in 1911, is not entitled to rank as evidence. Nevertheless, at this stage I am afraid I cannot avoid dealing with two points raised in this connexion by Professor Keith—viz., (1) the incident of the prize medal in connexion with Shaw's visit to Paris in 1821; and (2) the experiment of the dead rabbit.

Shaw's visit to Paris in 1821 is mentioned by Shaw himself in the footnotes of pages 84 and 89 of vol. ii. (1822) of Magendie's *Journal de Physiologie;* the facts about the prize-medal are as follows. Magendie in 1821—38 years of age, at the zenith of his extraordinary powers, the undisputed master of his science in Paris and throughout the continent, member of nearly every important scientific body in Europe—gave a full account of Bell's 1821 paper on the nerves of the face, as he did of any paper that he deemed to be of value, and shortly afterwards invited Bell to demonstrate his principal experiments as a preliminary to making a report concerning the adjudication of a prize—as was then and still is the custom of the Académie des Sciences. Mr. John Shaw, who was at that time Bell's demonstrator at the Windmill-street School of Anatomy, went over to Paris, and was only partially successful in his demonstration—for various reasons of which he himself gives explanations—and the medal was not awarded to Bell.

The experiment of the dead rabbit—which even now and with careful explanation is an excellent class demonstration—is first described by Bell in the preface to his "Exposition of the Nervous System" of 1824, at p. 29.[1] Professor Keith, after quoting the more popular description of the experiment given in Bell's "Letters," at p. 171, goes on to say that:—

> No statement could be clearer as to the function of the roots. At this early date (March 12th, 1810) Bell recognised that the spinal roots were different in function and that the anterior root was "*sensible*" (*motor* in modern terminology), and the posterior "*insensible*," or sensory ..... &c.

Slightly simplified, does this not amount to saying that no statement could be clearer as to the function of the roots, because Bell recognised that the anterior root was "*sensible*"—by which, of course, he meant motor—and the posterior "*insensible*"—by which, of course, he meant sensory? Anyhow, could not the statement have been clearer?

Professor Keith also directs attention to the related but collateral case of the fifth nerve. That is a different and more complicated matter, involving many other publications besides those of Bell and of Magendie. Bell's contribution to the advancement of our knowledge of the fifth (and seventh) nerves is contained in the two papers of 1821 and 1822 in the Philosophical Transactions of the Royal Society referred to in the footnote of my letter of March 4th. I do not wish to follow Professor Keith into this complicated matter until the simpler matter of the nerve roots has been disposed of, beyond stating briefly: 1. That anatomically the nature of the fifth pair and its similarity to a spinal nerve were clearly described in anatomical treatises long before 1821, as is indicated by the names applied to it—viz., *portio major quinti paris vel nervus trifacialis et portio minor quinti paris vel nervus masticatorius.* 2. The physiological point that in 1821 Bell attributed to the entire fifth pair both motor and sensory functions, and not, as Professor Keith represents, sensory function to the portio major (trifacialis), motor function to the portio minor (masticatorius).

Dr. Leonard Guthrie's references to Magendie are quite correct, so also is his appreciation of the generous manner in which Magendie met the claim to Bell's priority preferred through the elder Shaw. Magendie, as is evident in the first two volumes of his *Journal de Physiologie*, treated Bell (*J. de P.*, I., 384, and II., 66, 363) with the utmost consideration as a man of science on the same footing as Broughton (I., 120) and Rolando (III., 95) and Brodie (III., 93) and Shaw (II., 77) and Mayo (III., 345) and Christison (III., 274), and whose discoveries, as described by themselves, he translated and published in the *Journal de Physiologie*, and as a matter of fact it is clear that Magendie gave Bell more than his due credit in conceding to him the priority of having divided the separate roots as a physiological operation. The only other mention by Bell of anything resembling a section of nerve roots occurred two years later at p. 29 of "An Exposition of the Natural System of the Nerves of the Human Body" (1824).

So much for Magendie's attitude of mind towards Bell. But as is written at the head of these columns *Audi alteram partem*, let us therefore consider Bell's attitude of mind towards Magendie. Bell's rejoinder to Magendie's claim is given in the second part of his paper on the Nerves of the Orbit in the Philosophical Transactions of the Royal Society for 1823 at pages 302 and 307:—

> Experiments have never been the means of discovery, and a survey of what has been attempted of late years in physiology will prove that the opening of living animals has done more to perpetuate error than to confirm the just views taken from the study of anatomy and natural motions.
>
> Surely it is time that the schools of this kingdom should be distinguished from those of France. Let physiologists of that country borrow from us, and follow up our opinions by experiments (see the experiments of Magendie on the distinction in the roots of the spinal nerves), but let us continue to build that structure which has been commenced in the labours of the Monros and Hunters.

I earmark this passage as conveying Sir Charles Bell's opinion of Magendie.

Magendie replied to these comments in the tenth volume (1830) of his *Journal de Physiologie*, in a footnote prefatory to the translation of Bell's paper on the Nerve of the Face, of May 28th, 1829, as follows:—

> Je me suis toujours fait un devoir de presenter aux lecteurs de ce Journal les travaux anatomiques de M. Ch. Bell. Son esprit investigateur bien qu'un peu spéculatif, sa grande habileté dans l'art de disséquer, et son rare talent pour le dessin, lui assureront toujours une place distinguée parmi les anatomists de notre époque. Pourquoi faut-il que ce savant nuise à ses travaux, se nuise à lui-même, en ne rendant pas à ses émules la justice qui leur est due? Pourquoi conserve-t-il ce patriotisme barbare qui repousse tout ce qui n'est pas du pays? Pourquoi garde-t-il des prétentions à des découvertes qu'il n'a pas faites? Sans doute parce que tel est son caractère, et qu'il n'est pas facile de se changer, quand même on en sentirait le désir. D'ailleurs, ce travers, que notre franchise se permet de blâmer en lui, est peut-être le mobile qui l'excite au travail—et alors voudrions-nous réellement qu'il ne l'eut pas?

I earmark this passage as conveying Magendie's opinion of Sir Charles Bell. I have not attempted to translate it—the language is as clear and fine as is the thought.

The "dispute," if we are to call it so, is somewhat ancient. But so long as the essential facts exist on record it cannot be regarded as closed by a gross injustice, whether to a "countryman" or to a "foreigner." In a matter of such importance as the functional distinction between motor and sensory nerves historical truth is necessary and justice must be done to the "rival claims" of Bell and of Magendie in this respect. And if, as I believe, justice is due to Magendie, it is due to our own self-respect that such justice should be rendered in our own language.

I am, Sir, yours faithfully,

A. D. WALLER.

Physiological Laboratory, University of London, S.W., March 18th, 1911.

[1] "It was necessary to know, in the first place, whether the phenomena exhibited on injuring the separate roots of the spinal nerves corresponded with what was suggested by their anatomy. After delaying long on account of the unpleasant nature of the operation, I opened the spinal canal of a rabbit and cut the posterior roots of the nerves of the lower extremity; the creature crawled, but I was deterred from repeating the experiment by the protracted cruelty of the dissection. I reflected that an experiment would be satisfactory, if done on an animal recently knocked down and insensible; that whilst I experimented on a living animal there might be a trembling or action exerted in the muscles by touching a sensitive nerve, which motion it would be difficult to distinguish from that produced more immediately through the influence of the motor nerves. I therefore struck a rabbit behind the ear so as to deprive it of sensibility by the concussion, and then expose the spinal marrow. On irritating the posterior roots of the nerve I could perceive no motion consequent on any part of the muscular frame; but on irritating the anterior roots of the nerve, at each touch of the forceps there was a corresponding motion of the muscles to which the nerve was distributed. These experiments satisfied me that the different roots and different columns from whence those roots arose were devoted to distinct offices, and that the notions drawn from the anatomy were correct."

DEAF CHILDREN.

To the Editor of THE LANCET.

SIR,—May I be allowed to supplement the reference in the leading article on the education of deaf children appearing in THE LANCET of March 11th to the school of the Association for the Oral Instruction of the Deaf and Dumb at Fitzroy-square by a short statement as to the association's aims and its present position?

The writer of the article in question rightly points out that as early as the seventeenth century Dr. John Wallis of Oxford taught speech to his deaf pupils. So, too, did his contemporary Dr. William Holder of Bletchington. A century later the renowned Thomas Braidwood opened his private academy in Edinburgh, transferring it in 1783 to Hackney, London. Braidwood's method was founded on that of Wallis, and in its turn formed the basis of that of his nephew, Dr. Joseph Watson, who was the principal of the first English public school for indigent deaf children, founded in 1792 in the Old Kent-road, London. But oralism gradually waned, until in the "sixties" of last century the French system of signs was dominant in all the schools of the country.

Hence arose the association at Fitzroy-square, founded

in 1870, with the object of establishing a pure oral school for deaf children and a training college for teachers of the deaf on the oral method, and by these means of reintroducing into the country generally the practice of the oral instruction of deaf children.

Both the school and the training college have continued their work uninterruptedly down to the present time, mainly through the benevolence of a generous public. It is, however, to the training college I now wish to call attention, as the committee find themselves confronted with a task of exceptional difficulty in their endeavour to develop this side of the association's activities. That the college has been faithfully administered and successfully conducted may perhaps be best indicated in a word by stating that every Fitzroy-square student presented for the professional examination held by the joint examination board for teachers of the deaf, and open to candidates from all parts of the British Isles, has satisfied the requirements of the examiners, and one of them has each year headed the list of successful candidates. The work of the college has, however, been conducted under constant financial strain, and at no time has this strain been more severe than it is at the present moment. The college buildings are now inadequate for their purpose, and, further than this, the committee desire to broaden the basis of instruction given to the students and provide a training which shall not only satisfy the strictly technical requirements of teachers who seek service in certified schools for deaf children, but give them that degree of general culture and professional skill as will enable them to undertake with the fullest measure of competency the very important work to which they intend devoting their lives. *The State gives no grant towards the college expenses;* consequently fees have to be charged and the benevolent public appealed to from time to time.

An appeal is now being made for £3000, sufficient for the time being to enable the committee to carry out their proposals in a modest manner, though not to place the work on a permanent footing, and so far a fund has been collected amounting to about £1800. If the public could but realise the essential importance of an adequate supply of properly trained teachers, capable of giving the deaf children of the country a sound oral education, I feel sure the money would be forthcoming for our purposes. It is not enough that schools shall be opened and children compelled to attend them. They must also be staffed with properly trained teachers, and surely the work of providing the necessary training is one worthy of the most liberal endowment.

Mr. Macleod Yearsley's excellent articles on the education of the deaf child, which have just appeared in your journal, will, I trust, help not only to remove widespread misconceptions of the deaf child's educational capabilities and of his possibilities for useful citizenship, and bring about a better classification of deaf children at school, but help the public to realise how important the work of instructing these afflicted children is, and inferentially how essential it is that there should be a proper supply of competent teachers to undertake their instruction.

I am, Sir, yours faithfully,

G. SIBLEY HAYCOCK.

Fitzroy-square, London, W., March 15th, 1911.

THE SPHYGMOMANOMETER AND THE SPHYGMOGRAPH IN RELATION TO THE MEASUREMENT OF ARTERIAL BLOOD PRESSURES.

To the Editor of THE LANCET.

SIR,—I am indebted to Dr. George Oliver for his generous recognition of my address on "The Sphygmomanometer and the Sphygmograph in Relation to the Measurement of Arterial Blood Pressures," and I am, of course, glad to have the advantage of his support. Doubtless, as he says, the multiplication of the time points of the arterial cycle at which "pressure" may be read will increase the clinical value of the sphygmomanometer, but even when the maximum and minimum can each be estimated with confidence the rapidity, or otherwise, of the movement from one to the other will still be beyond the resources of the instruments at present at our disposal. Since Dr. Oliver's demonstration at the Royal Society of Medicine I have had some experience of the ingenious apparatus he has given us, and so far there does seem to me some presumptive evidence that by the auditory method, leaving on one side the question of the resistance offered by the arterial wall, a measurement of the diastolic pressure may perhaps be effected. At least, in all cases in which I have found the maximum record abnormally high Dr. Oliver's tambour has indicated also a high diastolic reading, with one exception, and that a decidedly impressive one—namely, cases of aortic regurgitation. In these, in my experience, the tambour gives a very low figure as the diastolic record, sometimes, indeed, at, or close to, zero. As in aortic regurgitation the physical conditions are particularly favourable to the fall of the intra-arterial pressure during cardiac diastole to an unusually low level, the fact that in such cases the auditory method announces a very low "diastolic pressure" may reasonably, if confirmed, be quoted in support of the claim that by this method the "diastolic pressure" may be estimated.

Dr. Reginald Pratt (THE LANCET, March 18th, p. 765) raises another issue. He challenges without qualification the whole art of sphygmometry. Now it is no doubt true that the sphygmograph, like other apparatus, may be deliberately manipulated for a particular purpose, or may, in careless or inexperienced hands, yield, within limits, unreliable results. But these possible inaccuracies can be avoided by due attention and practice, and defects due to one or other of them can, for the most part, be detected, not only at the time of record, but even in the completed sphygmogram. For example, I feel sure that anyone accustomed to the use of the sphygmograph will readily recognise that the peculiarities of Dr. Pratt's tracing B depend on some artificial limitation of the free movement of the lever of the sphygmograph. The difference between his tracings A and B is not that one shows "ill-sustained pressure" and the other "well-sustained pressure," but that A has been taken with a sphygmograph so adjusted as to allow free movement of the lever, whereas B is the expression of a checked or limited movement. I do not know under what guidance Dr. Pratt recognises A as answering to the description of a "low tension" or "ill-sustained" pulse, but personally I should not, from a contemplation of the tracing, have come to this conclusion.

I am, Sir, yours faithfully,

Harley-street, W., March 20th, 1911. C. O. HAWTHORNE.

"606" AND SYPHILIS.

To the Editor of THE LANCET.

SIR,—Allow me to make a few remarks in reply to the criticism of my article on "606"[1] by Dr. James McIntosh and Dr. Paul Fildes, published in THE LANCET of March 18th. In the first place, I must object to their accusation of my having cast a slur on the name of the inventor of "606." In my article I expressly stated that, "as its inventor is one who holds a high position as a medical scientist, it is necessary to deal with this preparation on its merits." As to the manner in which this preparation was "boomed," I do not know who was responsible for this, and I am not the only one who has drawn attention to it. In the second place, I beg to state that the views expressed in my article, which Dr. McIntosh and Dr. Fildes say are "unjustified and at variance with the opinions of the vast majority of competent observers," are shared to a greater or less extent by many experienced syphilologists and other members of the profession who are certainly competent. Whether these views are unjustified or not time will show; at any rate, the time appears opportune for a little wholesome criticism. After this preamble, I will pass on to the consideration of some of the statements made by Dr. McIntosh and Dr. Fildes.

1. These authors remark that "on the average, if not invariably, '606' is far superior to mercury in the symptomatic treatment of syphilis"; yet, in a previous paragraph, they state that "'606' has no reference to symptoms—it is purely a parasiticide." How these two statements can be reconciled is not apparent. But if "606" is purely a parasiticide, I should like to ask Dr. McIntosh and Dr. Fildes

[1] THE LANCET, Feb. 25th, 1911.

how they explain the undoubted healing effect of this preparation in cases of malignant syphilis, in the lesions of which, according to Buschke,[2] spirochætes are absent. The explanation given by Buschke is that the action of arsenobenzol is not parasitotropic, as Ehrlich supposed, but organotropic, and that it acts in a similar way to mercury and iodides. This view also applies to the lesions of tertiary syphilis, in which spirochætes are absent or few in number. I may add here that Dr. McIntosh and Dr. Fildes's assumption that, in my statement that treatment by "606" is symptomatic only and "not treatment of the disease itself," I "refer apparently to the spirochæte," is incorrect; the spirochæte is by no means the only factor concerned in syphilis, as Sir Jonathan Hutchinson has well pointed out in the new edition of his book. Dr. Levy-Bing,[3] who has just published the results of six months' experience with intramuscular injections of "606" at the St. Lazare Hospital, Paris, also comes to the conclusion that this preparation only cures the symptoms of syphilis, not the disease itself.

2. Dr. McIntosh and Dr. Fildes consider that "'606,' applied at properly ascertained times, will prevent the onset of symptoms with far less inconvenience and effect upon the general health than mercury." But, so far, there is no evidence that "606" has any action in preventing the onset of symptoms; in fact, according to Levy-Bing, recurrent symptoms are more frequent, and often of greater severity, after treatment by "606" than after mercurial treatment. With regard to the effect of mercury on the general health, so far as my experience goes (and this agrees with that of Sir Jonathan Hutchinson) the general health is generally improved by a course of mercury.

3. Dr. McIntosh and Dr. Fildes are undoubtedly correct in stating that "'606' will probably be used by the unskilled," but that this will be "without danger" is hardly to be believed. Apart from the deaths and other severe accidents following the injection of this preparation, which may in part, I admit, be attributed to faulty technique, there is an increasing amount of evidence to show that "606" has a deleterious effect on the nerves. This neurotropic action has been pointed out by Buschke and Fischer,[4] Finger,[5] Stern,[6] and others, who have reported cases of paralysis of the ocular muscles and affections of the internal ear. Buschke even goes so far as to consider that, in addition to the directly injurious effects of arsenic, "606" may cause deposits of arsenic in the internal organs, which predispose to further manifestations of syphilis. Finger, on account of this neurotropic action of "606," does not consider it indicated for the ordinary treatment of syphilis. "Aus den Gesagten glaube ich zum Schlusse kommen zu sollen, dass das Arsenobenzol sich vorläufig zur Anwendung in der Praxis nicht eignet."

I am, Sir, yours faithfully,

London, N.W., March 18th, 1911. C. F. MARSHALL.

"TERRIBLE NEWS OF THE PLAGUE."

To the Editor of THE LANCET.

SIR,—I have read in this week's issue of THE LANCET a report from St. Petersburg forwarded by your Constantinople correspondent and entitled "Terrible News of the Plague." The news may be terrible, but is not in any way founded on fact. I have but a few days ago returned from Peking, travelling through Manchuria, and when at Mukden met two of the workers from Harbin—namely, Dr. Wu and Dr. J. M. Stenhouse—so that I had ample opportunity of learning about the exact position of affairs.

As has been already reported by your China correspondent, active and effectual antiplague work has been carried on in the Chinese town of Harbin (Fuchiatien) for the last two months or more by Dr. Wu and other Chinese doctors, assisted by Dr. J. G. Gibb. Dr. W. H. G. Aspland, and Dr. Stenhouse, who are colleagues of my own at the Union Medical College, Peking. At the beginning of February the death-rate in Fuchiatien was as high as 150 a day, but since then conditions have steadily improved, so that at the time of my leaving (Feb. 28th) it had fallen as low as only two a day.

When these doctors first went up to Harbin the work was much obstructed by some of the local officials. Subsequently, by orders from Peking, these men were degraded, and thereafter the governor of the province and other officials did everything in their power to help the medical men in charge. The bodies of the dead were burnt to the number of about 4000, and have not been left lying about the streets as your correspondent describes. A large and efficient staff of sanitary police has been employed, while house-to-house inspection, rehousing, and isolation work have been steadily carried on, with the very satisfactory results described above. Naturally, the distress and suffering have been very great, but more from the intense cold and entire dislocation of trade than even from the plague itself. It is these conditions which have made the work so extremely difficult. Part of the Chinese Town had to be burnt down and large numbers of people had to be temporarily housed, whilst many more, as could only be expected and unfortunately could not be prevented, scattered to other parts of the country. In consequence, the town is in some measure deserted at the present time.

It is a pity, however, that these reports sent from St. Petersburg should be so inaccurate and misleading, as they bring discredit on the excellent work which has been done and which has been fully acknowledged by the Russian medical authorities. Similar reports have previously been circulated through St. Petersburg, an example occurring only the other day, when it was stated that 18 out of 19 Chinese doctors had died of plague at Kuanchengtze. The facts subsequently telegraphed by Dr. Young, also of the Union Medical College, Peking, were as follows: "Hospital under native doctors closed because four nurses, two doctors died. No precautions observed." This probably refers to a hospital manned by untrained Chinese doctors, many of whom have served bravely and faithfully in spite of their insufficiency of medical knowledge.

Before leaving Peking at the end of February I had abundant opportunity of seeing and hearing about the work done to prevent the spread of the plague. In consequence of ignorance of the danger and of the grievous insufficiency of trained medical men, the work was begun late and carried out under many difficulties; but, speaking generally, the necessary measures were widely and gladly adopted and the officials heartily coöperated in the work. It is to be hoped, however, that the present circumstances will help to awaken the Chinese Government and people to the intense need of national public health work, and of efficiently trained men to carry this out. I am, Sir, yours faithfully,

H. V. WENHAM.

St. Bartholomew's Hospital, London, E.C., March 18th, 1911.

OPEN WINDOWS IN THE TREATMENT OF CERTAIN DISEASES.

To the Editor of THE LANCET.

SIR,—About three years ago I called attention to certain facts which seemed to indicate that the prevalence of adenoids among children resulted from making them sleep during cold and damp weather with the windows open. Among other things I then noted, of 49 children who had been brought up strictly on the open-window system 22 had been operated on for adenoids, while in 69 children who had been brought up on the shut-window system only two cases of adenoids were observed. Further investigation seems to me to have confirmed the supposition that cold and damp air predisposes to, or is in some way generally associated with, the causation of adenoids, and I understand that some laryngologists now admit my contention. Indeed, one told me that he was now "absolutely convinced," and another that he had been "completely converted."

Further considerations have led me to suspect the wisdom of treating certain diseases on the open-window system. That cold and damp weather has a very marked effect on the prevalence and severity of certain diseases is conclusively shown by the frequency of these diseases in winter and the mortality returns at particular periods of the year associated with cold and damp weather. On the other hand, as far as I have been able to learn, there are no satisfactory statistics which indicate that the open-window treatment of influenza, common colds, measles, and bronchitis is attended with more beneficent results than the shut-window system. The

[2] Berliner Klinische Wochenschrift, No. 1, 1911.
[3] Annales des Maladies Vénériennes, March, 1911.
[4] Loc. cit.
[5] Wiener Klinische Wochenschrift, Nov. 24th, 1910.
[6] Deutsche Medizinische Wochenschrift, Jan. 5th, 1911.

prevalence of such a deadly disease as pneumonia so frequently following some of the diseases referred to indicates that we should at least have some very definite statistical evidence as to the effect of the open-window system in the treatment of these diseases during cold and damp weather. Of course, I am not suggesting that efficient ventilation by night as well as by day is not desirable, nor that there may not be more chance of infection for others in the same room, if the windows are kept closed, nor even that in good health it is not desirable to become hardened as far as possible to the ordinary climatic variations which are likely to have to be encountered. My point is, that when any of the diseases mentioned is present that is not the time, in the majority of cases at least, for anything but sheltering the patient from certain climatic vicissitudes. Open windows are particularly objectionable in all probability when a child is ill and has hitherto not been habituated to the pouring in of cold and damp air through the open window. It would appear, however, that one of the first things which may be done, immediately a nurse for a sick child has been procured, is to open, and keep open, the windows day and night regardless of the nature of the disease, the kind of weather or the conditions to which the child may hitherto have been accustomed.

I am, Sir, yours faithfully,

Wimpole-street, W., March 7th, 1911. J. SIM WALLACE.

EYE-STRAIN IN RELATION TO GENERAL HEALTH.

To the Editor of THE LANCET.

SIR,—It is not easy to grasp the point of Mr. Kenneth Campbell's letter in THE LANCET of March 18th. I take it he admits the possibility of local cerebral congestion, though contradicted by experimental research, and denies that such a factor could cause the symptoms usually attributed to "eye-strain" "in view of the fact that the brain is insensitive." Headache is one of the commonest results of so-called "eye-strain," it is also the result of many other conditions—toxic, traumatic, &c. If then the sensitiveness of the brain has anything to do with the subject I would be glad to hear in what way.

I am, Sir, yours faithfully,

Manchester, March 20th, 1911. A. A. BRADBURNE.

EXPERIMENTS IN SEWER VENTILATION AT LEICESTER.

To the Editor of THE LANCET.

SIR,—The report of your Sanitary Commissioner in THE LANCET of March 4th, p. 618, points once more to the efforts of THE LANCET in continually making publicly known anything likely to assist in improving the health and comfort of the people all over the world in general and of the United Kingdom in particular. The truly scientific system of sewer and drain ventilation of Shones cannot be questioned by any practical man, and it is a great pity it is not more largely adopted throughout the kingdom, especially in so-called health towns, which should be compelled by Act of Parliament to have every drain and sewer fitted or a similarly effectual system.

Your Commissioner in his very thorough report calls attention to the difficulties encountered at Leicester after the system had been put in operation, especially when it was found that air was drawn into the drains and sewer through unsound and leaky joints and not through the down-cast ventilation pipes. To my mind, this is evidence of one of the valuable points of the system, because it exhibits a serious weakness that under the present system of sewer or drain ventilation would never be discovered, especially as now there are methods of making drain and pipe sewer joints sound (air and water tight) without greatly disturbing the surface ground under which drains and sewers are laid at a reasonable cost. The very great health advantage would be added to the district of having sound sewers and drains scientifically ventilated, with the advantage, as your Commissioner also points out, of having all foul smells drafted away from the town and district where they can be filtered, cremated, or destroyed. Another great advantage also accrues in that the sewage is continually being aerated, and in places where sewers have slight gradients the flow would be doubtlessly accelerated. Your Commissioner mentions cost of electric current at 3*d.* per unit, but now in most places where an efficient installation of electricity is obtained the cost for power should not be more than 1½*d.* per unit, and to avoid another risk also mentioned—viz., failure of ventilation by breakdown of motor working the fans—the motors and fans should be in duplicate.

As in my experience there are very few places where drains and sewers are sound, the value is seen of adopting some such system of sewer ventilation so nobly tried by the advanced town of Leicester, and so ably explained by your Sanitary Commissioner, and the wide publication of your report should tempt some of our good philanthropists who have the good health of the nation one of their objects.

I am, Sir, yours faithfully,

Ebury-street, London, S.W., March 8th, 1911. D. T. BOSTEL.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—Mr. Dixon, a Christian Scientist, lately said in the *Saturday Review* that I "declared openly, a few months ago, that there is such a mania for the removal of the appendix." Let me say that I never said anything of the kind, nor wrote it, anywhere. Mr. Dixon is attributing to me what somebody else may have said.—I am, Sir, yours faithfully,

Ladbroke-square, W., March 21st, 1911. STEPHEN PAGET.

MUSCULAR SPASM IN CARIES OF THE SPINE.

To the Editor of THE LANCET.

SIR,—While being naturally gratified at the appreciation of my work, which so well-known an authority on spinal curvatures as Mr. Roth has been kind enough to express, I must confess some surprise at his protest against my suggestion that muscular spasm is a factor of importance in the production of deformity in spinal caries.

Mr. Roth's assertion that I have assumed the action of a whole group of muscles which do not exist is unwarranted; his appeal to you to admit that such muscles exist only in my imagination is almost pathetic; while his sneer at an eminent orthopædic surgeon, whose views may not coincide with his own, is undignified. Mr. Roth has not appreciated the fact that an anterior spinal muscle is by no means synonymous with a muscle anterior to the spine. In the paper he refers to, which you honoured me by printing in the columns of THE LANCET, I was dealing essentially with the mechanical treatment of spinal caries during recumbency. I indeed prefaced my description of the apparatus I employ by a short allusion to the factors which produce deformity, and emphasised the influence of muscular spasm. That it is a factor in the production of deformity of extreme importance I am convinced, but that its action is very complex, I think, cannot be doubted. I hope indeed later to be able to publish a separate paper on this subject, but to have dealt with it at length in the original paper was an impossibility.

Mr. Roth has deigned to criticise my remarks somewhat hastily and without due consideration. If he will dispassionately consider the factors which produce deformity in spinal caries in any particular case, he should, in the light of the suggestion I have made as to the importance of muscular spasm, soon grasp the importance of the action of the anterior spinal muscles—i.e., the anterior of the muscles investing the spine—which act to the greatest mechanical advantage in the dorsal region, and not, as he conceives they should, in the cervical or lumbar. Mr. Roth has betrayed a lack of comprehension of muscular action about the spine. Perhaps his kindly hint that I should examine the cadaver might be amicably reciprocated by me. I did not venture to advance my views until I had anticipated his advice and supplemented the information I thus gained by extensive clinical observation.

In any case, even if Mr. Roth is unable to appreciate the effects of muscular spasm in spinal caries, yet still he may care to adopt the mechanical methods I have advocated, methods which are the outcome of a study of muscular spasm in this condition. In that case I can promise him with confidence that the cases of spinal caries under his care will not become more deformed, that deformity which has not commenced will not appear, and that that portion of deformity which may be present which is due to existing muscular spasm may be safely and certainly corrected.

I am, Sir, yours faithfully,

Alton, Hants, March 20th, 1911. H. J. GAUVAIN.

THE CHOLERA EPIDEMIC.

(BY THE BRITISH DELEGATE TO THE CONSTANTINOPLE BOARD OF HEALTH.)

Cholera in Russia.

CHOLERA still lingers in Russia, as shown by the following returns (in continuation of the figures published in my last letter in THE LANCET of Feb. 11th, p. 395):—

Week ending Nov.	20th	.....	30	cases,	16	deaths.
,, ,,	,, 27th	.....	34	,,	18	,,
,, ,,	Dec. 4th	.....	13	,,	9	,,
,, ,,	,, 11th	.....	37	,,	18	,,
,, ,,	,, 18th	.....	14	,,	5	,,
,, ,,	,, 25th	.....	2	,,	3	,,

The above are "corrected" figures; the following are "uncorrected":—

Week ending Jan.	1st	.....	4	cases,	1	death.
,, ,,	,, 8th	.....	2	,,	4	,,
,, ,,	,, 15th	.....	9	,,	6	,,
,, ,,	,, 22nd	.....	2	,,	1	,,

The cases and deaths in the bulletins for Jan. 1st and 8th all occurred in the Ekaterinoslav government, those in the bulletin for Jan. 15th in the governments of Podolia and Kief, and those in the bulletin for Jan. 22nd in the government of Podolia. (All the above dates are according to the Old Style.)

Cholera in Austria.

On Dec. 10th the Austrian Minister of the Interior declared officially that no case of cholera had occurred on Austrian soil since Nov. 7th, and that from the beginning of the outbreak on August 23rd there had been only 15 cases with 5 deaths. The last case was that of a major in the army, who arrived at Graz on Nov. 5th and was apparently already sickening with an attack of cholera; he had come from Pancsova, in the county of Torontal, which had already been declared an infected district.

Cholera in Hungary.

On Dec. 30th it was officially stated that no fresh case of cholera had occurred in any part of Hungary—Croatia and Slavonia included—for five days, and the whole country was declared "clean." The following additional figures have been received for the outbreak in Croatia and Slavonia:—Between Nov. 5th and 12th there were 9 cases and 8 deaths, occurring in six different places, situated in five different counties; between Nov. 12th and 19th there were 11 cases and 4 deaths in six places, in four different counties; and between Nov. 19th and 26th there were 4 cases and 2 deaths in four places. All these cases were confirmed bacteriologically. Between Nov. 26th and Dec. 4th no further cases occurred; but between the 4th and 10th 2 cases, both fatal, occurred in the county of Srien, and between the 10th and 17th 1 case in that of Agram.

Cholera in Italy.

The latest returns from Italy are as follows:—In the week ending Dec. 14th 38 cases and 11 deaths; of these, 3 cases and 1 death occurred in the province of Aquila, 1 case in that of Caltanisetta, 9 cases and 4 deaths in that of Caserta, 6 cases and 1 death in that of Lecce, 9 cases and 2 deaths in that of Palermo (including 7 cases and 1 death in the Palermo lunatic asylum), 3 cases and 3 deaths in that of Rome, and 7 cases in that of Salerno. In the week ending Dec. 21st there were 18 cases and 2 deaths, distributed as follows:—1 case and 1 death in the province of Caltanisetta, 4 cases in that of Caserta, 9 cases in that of Lecce, 3 cases and 1 death in that of Palermo (all in the asylum above alluded to), and 1 case in that of Salerno. No detailed returns have been received here since the last-named date, but it is declared officially that since Jan. 31st no further case of cholera has occurred on Italian territory.

Cholera in Constantinople and Turkey in Europe.

The cholera outbreak in this city came to an end early in January. In the week ending Jan. 2nd there had been 62 cases and 46 deaths; in that ending Jan. 9th the figures fell to 17 cases and 20 deaths; and between the 10th and 13th 10 more cases and 8 deaths were registered. The last new case occurred on the 11th, and ten days later Constantinople was declared free. The totals since the beginning of the epidemic on Sept. 13th were placed at 1318 cases and 793 deaths, among the civil population. Since the middle of January remarkably severe weather has been prevalent in Constantinople and neighbourhood. In Salonica no cases have been reported since Dec. 31st, and the whole of European Turkey seems to be now free from cholera.

Cholera in Asiatic Turkey and among Returning Pilgrims.

The following have been the recent weekly returns from Smyrna:—

Week ending Jan.	1st	.....	12	cases,	8	deaths.
,, ,,	,, 8th	.....	36	,,	20	,,
,, ,,	,, 15th	.....	38	,,	27	,,
,, ,,	,, 22nd	.....	86	,,	51	,,
,, ,,	,, 29th	.....	69	,,	32	,,
,, ,,	Feb. 5th	.....	15	,,	11	,,
,, ,,	,, 12th	.....	5	,,	3	,,

The last case here occurred on the 7th, and Smyrna has now been declared cholera-free. In all 341 cases and 213 deaths have been recorded in the town. Recently a few cases of suspected cholera have occurred in the neighbourhood of Broussa, and in that of Zunguldak on the Black Sea. Otherwise the whole of Asia Minor appears to be now free from the disease. The same statement may be made in regard to the Bagdad vilayet; 5 cases and 5 deaths occurred here (at Kerbela, one of the Shiah holy cities) on Jan. 1st and 2nd, and none have been reported since. The outbreak of cholera among the returning pilgrims, the beginning of which was reported in my last letter, has caused a considerable, but not excessively high, mortality. In Mecca the following cases and deaths have been recorded:—

Between Dec. 26th and Jan.	15th	.....	119	cases,	106	deaths.
,, Jan.	16th ,, ,,	22nd	24	,,	26	,,
,, ,,	23rd ,, ,,	28th	10	,,	10	,,

Since the last-named date Mecca appears to have been free from the disease. The totals here are put at 153 cases with 142 deaths. These figures are in all probability below the truth. In Jeddah the disease was first seen about Jan. 10th; the first cases occurred among the troops. The outbreak in this port seems to have been limited to about a score of cases, and on Feb. 9th it was telegraphed that no further cholera bulletins would be issued, the outbreak appearing to be at an end. From Yanbo only irregular and imperfect reports have been received; on Jan. 8th it was reported that 7 cases and 2 deaths had occurred there; and on Jan. 13th the totals were said to be 24 cases and 21 deaths. No further news has been received from Yanbo. An outbreak of cholera, in regard to which it has proved difficult to obtain exact information, has occurred in the Yemen, in the neighbourhood of Hodeidah. The first cases were seen in the village of Badjil, 25 miles to the north-east of Hodeidah; between Jan. 9th and 16th 48 cases of cholera and 37 deaths were recorded here; two fatal cases were also seen at Zeidieh, a village to the north. Between the 16th and 21st 10 further cases, with 9 deaths, occurred at Badjil. On the 21st it was reported that cholera, "confirmed bacteriologically," was prevalent among the troops in Hodeidah, causing many cases and deaths; that 3 cases and 2 deaths had occurred among the native population; and that it was reported "unofficially" that cholera existed among the troops at Menaha. Three cases of the disease occurred in the Camaran lazaret, among pilgrims returning to the Yemen and carried on board the s.s. *Budrie*; the first case was isolated on Jan. 8th, the second on the 9th, and the third on the 17th. Vice-consular reports from Hodeidah also state that cholera had, according to "unofficial" reports, broken out among recruits on a transport steamer, the s.s. *Saiyar*, and that between Jan. 17th and 19th 50 cases of the disease and 18 deaths had occurred among them. Large numbers of troops are still being poured into the Yemen, where the bulk of the Arab tribes are in revolt, and it is generally believed that both the Turkish army and the Arabs are suffering from a more or less severe outbreak of cholera; but, as already stated, it is most difficult to learn the true facts. As was anticipated, the infection was carried from Mecca to Medina by the caravans of returning pilgrims. Apparently the first infected group arrived at Medina on Jan. 4th; it had had 5 cases and 4 deaths from cholera. Succeeding caravans arrived in the same condition; they reported that the disease had appeared

among them at Rabigh (or Rabouk)—the important point on the most westerly of the three roads from Mecca to Medina, and the spot where it is generally thought a new port will some day be made, destined to replace Jeddah, and perhaps to be the terminus of the railway between Mecca and the coast. On the 10th as many as 14,000 pilgrims arrived from Mecca in the day, and 51 cases of cholera with 25 deaths were recorded among them. The disease also prevailed among the inhabitants of the town, and a score or so of cases occurred daily for some time. By Jan. 27th 400 cases and 510 deaths had been registered. It may be noted that infected caravans continued to arrive from Mecca, both by the most westerly and the most easterly roads; and that among some 7000 pilgrims arriving in Medina from Yanbo no case of cholera occurred, showing that in all probability the outbreak at Yanbo has not been a very severe one. The latest returns from Medina show that only 3 or 4 cases are occurring there daily.

Cholera on the Hedjaz Railway.

The first pilgrim train left Medina for the north on Jan. 5th, with 429 pilgrims. Groups of from 300 to 500 pilgrims continued steadily to arrive at the Tebuk lazaret once or twice a day. Among the first groups to reach the lazaret three suspected cholera cases occurred, and these were subsequently confirmed bacteriologically. Since then apparently no cases of the disease have been seen there. It has to be remembered that the Tebuk lazaret is still an improvised one, though it already possesses most of the essentials of such an institution. Some alarm was created recently by the report that cholera had occurred among pilgrims arriving at Damascus, after having done their quarantine and other measures at Tebuk; but fortunately this report appears to have been quite unfounded, and so far as is known no case of cholera has yet occurred north of the lazaret of Tebuk. Some suspicious cases have been more than once reported as occurring in the trains between Tebuk and Damascus, but none of these have been confirmed; indeed, they have all been officially declared not to have been cases of cholera. The pilgrims are subjected to a final medical visit on their arrival at the Kadem terminus of the railway in Damascus. The movement northwards of pilgrims still continues, and so long as it continues there must always be a danger of cholera appearing among them at Damascus or elsewhere, in spite of the measures executed at Tebuk.

Cholera in Persia.

Cholera appears to have lingered in many parts of Persia throughout the month of December. A telegram from Teheran, dated Jan. 7th, stated that cholera "existed positively" at the end of December in the towns of Hamadan, Kerman, and Mohammera, and that, "according to all appearances," the provinces of Ghilan, Kaskin (? Kazvin), Khorassan and Kaian (?) were not yet completely free from the disease. On Jan. 22nd another telegram stated that no case had occurred in any part of Persia since the 20th.

Constantinople, Feb. 17th.

THE DANGEROUS WATER-SUPPLY OF CHERBOURG.

(FROM A CORRESPONDENT.)

CHERBOURG, the French naval port, lies at the mouth of the river Divette, and in the lower part of its basin. It is a town of some 43,000 inhabitants, of whom 16,000 are employed in the arsenal or are in the army or navy. It has a sinister reputation as the town in France, Toulon only excepted, the most seriously and constantly infected with enteric fever. The enteric death-rate of Toulon in the ten years 1897 to 1906 is stated at 0·86 per 1000 living, that of Cherbourg at 0·71 per 1000, while Paris only lost 0·15 per 1000 of her population by this disease. These figures are taken from a detailed account of an epidemic in Cherbourg in 1909, which appeared in December and January in the *Archives de Médecine Navale*, written by Dr. L. E. F. Brunet, Médecin de première classe. His tables show that enteric fever is every year present in Cherbourg, but that notable epidemics occurred amongst the Government employees of all kinds (the people who are treated in the naval hospital) in 1889, 1898 and 1899, and in 1909, and that every single epidemic was ascribed to the bad water-supply, which still remains ever the same. I think that readers of THE LANCET may find the story instructive.

Cherbourg gets its water-supply, it appears, mainly from the Divette, but also from brooks, from certain springs, and from wells. People who live just above the town use the Divette water exactly as they pump it up; the navy has a station a mile above the town where they take water from it—water they pipe to the arsenal for boilers, washing, and the like; just below this is the town's intake—the water is allowed to settle and is filtered before distribution as drinking water. Owing to the geological conditions of the district the springs cannot be secured against pollution, but from them the barracks are supplied, water intended for drinking being all sterilised before issue. Taps—"washing water only"—are frequent throughout the barracks and the arsenal, and men will make mistakes. Only one barrack has a supply in which bacillus coli has never yet been found, and its men got off very lightly in the last epidemic. The small houses of the district, cafés, public-houses, lodgings affected by soldiers and sailors generally get their water from wells which are all suspected; many have been closed as they contained too many of the bacillus coli. As to conservancy, there is no general system of water carriage, but there are a great number of leaking cesspools and many pail-closets. The nightsoil is spread on the fields in the valley of the Divette above the town or around the brooks mentioned, and it has been for long believed that the water becomes charged habitually with the bacillus coli and from time to time with the bacillus typhosus.

Medical men have for years been preaching about the terrible risk and the constant damage to the health of the garrison and of the townspeople involved in this lack of protection of the water-supply, but nothing thorough has been done. In 1889 there were 394 cases of enteric fever in the naval hospital with 75 deaths; the director of the naval board of health pointed out that it was not filters only, but a pure water-supply that was required, adding that it was the duty of the board of health to emphasise the dangers, but the duty of the superior authorities to remove them. A military medical officer, too, at the same time insisted on the need for pure water, but only Chamberland filters were installed. As far back as 1898 and 1899, 665 cases were treated in the naval hospital with 189 deaths, and Director Rouvier wrote that the navy must have good water for itself, and to shield its men from infection must require the town, too, to get a good supply. Yet the source of supply remains as before, only the army and navy sterilise some water for their men, and the town seems to purify its water in some degree by sedimentation and filtration. That is all that has been done. The dangers are so well known to the inhabitants that they avoid drinking the water as far as possible; some very scrupulously filter all they use, others buy the water of a particular spring, reputed safe, in bottles for drinking and personal washing; others, again, drink nothing but cider.

Cherbourg is always liable to an outburst of enteric fever, and some 30 deaths due to the disease occur there every year. The story of the epidemic of 1909 is a typically instructive one. On Jan. 7th a case of illness was received in the Naval Hospital and gave on the 11th a positive Widal reaction. Eight cases in all were received during January; they were from the arsenal. On Feb. 6th there came four men all from different parts of the district, showing that the whole of the water-supplies were infected, 65 were received in the first fortnight of February, 92 in the next fortnight, 59 and 69 in the successive fortnights of March, by which time the epidemic was nearly over, only 16 cases appeared in April, two in May, and six in the next three months. There were 317 cases altogether, of whom 58 died. It appears that the only body of men who conspicuously suffered little were the two regiments whose barracks rejoice in the water-supply free from bacillus coli (13 cases and two deaths between the two regiments). As soon as the existence of the epidemic was recognised all the emergency measures that could be taken to stop it were suggested by the doctors and at once put in orders. They could not be expected to make any difference for a fortnight or three weeks, and in the meantime everybody came to show sympathy with the sick. The Minister of Marine came, the Under-Secretary for War, many high functionaries, the Committee

of Military Hygiene and Epidemiology, the Parliamentary Committee of Hygiene, and so on. (What a pity they had not come down and seen about the conditions a couple of years before, when they might have been of use and prevented the epidemic!) When they did come it was thought that these frequent visitors did the patients no good but rather harm. One man, quite alarmed at having so many visitors, asked if he was really so very ill or why were so many people taking interest in him? The epidemic manifested great severity, and when symptoms of perforation did appear the patient was always too weak to endure an operation. The best treatment was complete rest, extreme cleanliness, and only liquid food. Convalescence was rarely protracted; patients being generally young recovered quickly, and had mostly ceased to discharge bacillus typhosus in stools or urine before the end of three months. In addition to the 317 cases of typical enteric fever there were a number of others suspected to be abortive attacks or slighter infections. They occurred especially as the main epidemic was decreasing. They had nearly all headache, the characteristic tongue, gurgling in the iliac fossa, and diarrhœa; generally they gave a marked Widal reaction very early, sometimes they showed rose spots and had a pyrexia lasting from one to three weeks. They were not sufficiently marked to be declared enteric fever, an important decision; if enteric they must be notified according to recent French law, but public opinion does not seem yet to be ripe for notification, in private cases at least, for that entails disinfection and other horrors. Ten orderlies fell sick in the Naval Hospital while nursing cases. Two of them died—possibly they were overworked, for the wards had 40 beds each and were nursed by two orderlies only.

The present most dangerous water-supply has cost France in the last 21 years the lives of 424 men from her army and navy, as well as some 140,000 days wasted in hospital. A horse costs some £20; what is a man worth to the State? Dr. Brunet, in the articles from which we have quoted, accepts a moderate £60 estimate and 2*s.* 6*d.* for each day in hospital, that makes £40,000, and when all the cost of sick leave, invaliding, pensions, and so on, are added in, he makes the total national expense £80,000 in 21 years. In addition, there is the loss to Cherbourg. Dr. Brunet cannot tell how many cases or deaths from enteric fever there have been among the civil population, but in March, 1909, when the service death-rate increased so much, the civil deaths were 128, 51 above the 77 of the same month in the preceding year. And the general death-rate per 1000 in 1904–1908 was in London 15·1, in Paris 17·7, but in Cherbourg 34. All this may appear rather an old story as well as a terrible one; the main point of narrating it in these columns is to accentuate my belief that matters have not been changed, and that the water-supply of Cherbourg is still a source of grave risk. We have shown here what disastrous results may follow when administrators and high officials neglect the considered and often repeated advice of responsible medical officers.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Cost of Sickness in Manchester.

A FEW days ago Dr. J. Niven, the medical officer of health, read a striking paper at a meeting of the Manchester Statistical Society, on the cost of the sickness from which Manchester suffers. It may seem a cold-blooded method of treating the subject, but it is, of course, useful to estimate the cost of sickness in money. The suffering and distress cannot thus be calculated. Dr. Niven adopted the estimate that has been made that every man, woman, and child of the nation has an average value of £50. In the middle of 1909 the population of Manchester was 654,584, and on this estimate their value would be £32,729,200. Also, taking the number of deaths annually at 11,000, the value annually destroyed would be £550,000, "if the deaths were distributed in proportion to the numbers living at different ages," but instead of this being the case, death occurs chiefly at the ages when value was least or negative. It was estimated, also, that the annual expenditure in Manchester on sickness and funeral expenses would be £523,206. But this estimate is probably much too low, for the various sick-pay societies "were representative of thrift, and there was a large section of the community which was better off than their average members, while the expenditure on sickness in Manchester was very high." Dr. Niven gave the estimate of expenditure on sickness as follows: Public voluntary institutions, including nursing, £110,000; Poor-law expenditure on sickness, £70,000; private expenditure on sickness, £300,000; municipal sanitary expenditure, £116,000; with various other items, amounting in all to £741,000. The whole of this cost was not defrayed directly by the wage-earner, and he proposed to estimate the direct contribution at £500,000. He estimated the economic loss from phthisis alone at £500,000, but whether that estimate was correct or not it was evident that the annual loss to Manchester was enormous, "and that if the city, by expending £1,000,000, could effect its extinction the result would be cheaply arrived at." Dr. Niven said young people should be encouraged to play outdoor games. He had, too, a good word for military training in its effect on health, and said it would be a fine thing for discipline if the whole male population spent a year under training. It would involve loss, no doubt, but this would be least felt if the training were given at or about the age of 21, "at which age the greatest benefit would accrue." He said, moreover, that the mortality from phthisis in England and Wales fell at a more rapid rate from 1860 to 1900 than it had done recently, and that both in Germany and in England, "the steepest period of its fall coincided with a great access of commercial prosperity," when, of course, a family could the more easily be maintained in a well-nourished condition. This led to the question, he said, whether tuberculosis can be most cheaply prevented "by expending money in raising the nutrition of families in which tuberculosis had made its appearance, by housing consumptives in sanatoria, by other methods, or by a judicious combination of these methods."

Small-pox and Measles at Bury and Stalybridge.

It is nearly seven years since Bury was visited with small-pox, but a serious outbreak has now occurred. About the beginning of the month Stalybridge has also suffered an outbreak of small-pox which has caused some anxiety. The sanitary authority is, however, making serious efforts to stamp out the disease. It is advising vaccination, while revaccination is carried out at the expense of the corporation. The Ashton guardians have prohibited visiting to the workhouse and hospital for the present, and the same plan has been adopted at the district infirmary. In addition to small-pox, Stalybridge has suffered from an epidemic of measles, and all the elementary schools in the borough are more or less seriously affected. It has spread rapidly during the last month, and the epidemic does not seem as yet exhausted. It may be remembered that in the last letter from Manchester it was a matter for congratulation that Stalybridge had a remarkably low death-rate. It may be feared that these visitations may affect it injuriously.

Hospital Saturday Fund.

The annual meeting of the Manchester and Salford Saturday and Convalescent Homes Fund Incorporated was held recently in the town-hall, the Lord Mayor presiding. The total income for last year was £7166 6*s.* 10*d.*, a decrease of £275 on the previous year. The workmen's contributions showed a decrease of £161. The transfer of £250 from the reserve fund will, however, allow of the medical charities receiving £4400, the same amount as distributed last year. Hospital Saturday will this year fall on May 20th.

Gift of House and Land for Treatment of Phthisis.

A very good excuse was made the other day by the Lord Mayor of Manchester for being a few minutes late at a meeting in the town hall. He said he had been receiving, on behalf of the city, the gift of a fine mansion and 40 acres of land in the country for a residential institution for children in the incipient stages of phthisis. The donor wished to hand the deeds over personally to the Lord Mayor. The site of the mansion, with a good deal of the land, is 500 feet above sea-level. There is ample meadow land for the keeping of cows, and the grounds are well adapted for outdoor shelter. The efforts which the education committee has made at Swinton in the treatment of physically defective children have been so successful that it is hoped that much benefit

will result in the case of the children treated somewhat similarly at Summerseat. It is proposed to commence the work with about 40 children, but with some extensions a larger number can be dealt with. Much good must result from Mr. Cuthbert C. Grundy's very generous gift.

A School for Mothers.

The annual meeting of the friends and supporters of the Manchester School for Mothers was held a week ago in the town-hall, the Lady Mayoress, Mrs. Behrens, presiding. It may seem strange that such a school should be needed, but as Mr. T. C. Horsfall remarked, "the manufacturing system, which had brought many of those present their wealth, had broken up family life and had deprived these women of the knowledge of how to deal with young children." This is a heavy indictment, but a true one, of our manufacturing system, so that, as he said further, an association like theirs was only doing its duty in supplying women "with the knowledge which the interests of their class had deprived them of." There are five branches in different parts of Manchester, and in the Ancoats branch, to take that as a sample, 468 women attended, among whom were many expectant mothers. They were advised as to how to prepare for the baby, and on its arrival they are advised as to its management. Weekly consultations are held, when every baby is weighed and when required it is seen by the doctor. Whether all this supervision may sometimes lessen the sense of parental responsibility need not here be considered, as this is a mere narrative; but there is no doubt that many an infant lives to be a year old when without this help and teaching it would have added to the mortality roll. At a year old it passes out of this school, and now the "Santa Fina Cripple Society" has agreed to supervise all children sent by the School for Mothers, and to continue their care till they are five years old, when they come under the inspection of the school medical officer. Dr. H. R. Hutton said that the object of the school was to try "to reduce the appalling death-rate in the congested districts of Manchester," largely due to the deaths of small infants. Mrs. Behrens commended the work of the school, to which she said all should subscribe.

March 18th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Hospital Saturday Fund.

THE annual meeting of subscribers to this fund was held on March 13th under the presidency of the Lord Mayor. The report stated that the annual collection for last year amounted to £20,375, which is £686 in excess of the previous year. The number of contributing firms was 2188. In October £10,000 were voted for distribution among the medical institutions of the city. The work of the convalescent homes supported by them increased each year. In 1910 there were 1230 men at Tyn-y-Coed, near Llandudno, and 1388 women at Marle Hall, near Llanrhos. At Red House, Great Barr, the home for children, 615 children and 110 women were admitted. The total number of patients was 3343, an increase of 357 over the previous year. Good progress had been made with the Sir William Cook memorial scheme, and when the new home for consumptives at Romsley Hill was completed it would be handed over to the fund to be managed and maintained by the committee.

Treatment of Consumptive Children.

The success of the Salterley Grange and Yardley Road Sanatorium for Consumptives has raised the question whether similar provision should not be made by the health committee for consumptive children. At present there is no municipal or other institution where these children can be treated free. At a meeting of the city council the chairman of the health committee stated that they were prepared to undertake the treatment of such children if it were the wish of the council, and a subcommittee has been appointed to prepare a scheme. There has been much correspondence in the newspapers urging the importance of the subject. The primary duty of a health committee is, of course, the prevention of disease, and since children appear rarely to suffer from chronic phthisis and are not centres of infection in the same way as the adult consumptive it becomes a debatable question as to how far the municipal authorities are justified in treating other tuberculous conditions. If a sanatorium be limited to cases of pulmonary tuberculosis in children, then undoubtedly many cases of pulmonary disease would be admitted of a non-tuberculous nature, so great is the difficulty of distinguishing between these conditions. The health committee's scheme will therefore be awaited with much interest.

March 21st.

WALES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Milk-Supply.

COMPLAINTS are constantly being made by the inhabitants of Cardiff with regard to the quality of the milk-supply of the town. A suggestion has been made that the corporation should make arrangements for the examination of any sample of milk submitted by a householder. It is admitted that no action could be taken against the milk vendor in the event of the report of the examination being unsatisfactory, but it is contended that a knowledge of the poor supplies would be obtained and official samples could then be collected. At a recent meeting of the health committee the medical officer of health, Dr. E. Walford, stated that by arrangement with the South Wales and Monmouthshire University College and the Board of Agriculture and Fisheries, dairymen, farmers, and cowkeepers generally could have milk examined for a fee of 6*d.*, but that other persons would have to pay a fee to the public analyst of 10*s.* 6*d.* A subcommittee of the health committee has been appointed to consider the practicability of carrying out more frequent examinations.

Glanders among Monmouthshire Pit Horses.

In consequence of an outbreak of glanders among the horses in one of the collieries in Ebbw Vale which occurred last year[1] and which it was said had been the cause of the disease in several men, a departmental committee was appointed to consider what steps could be taken to deal with such outbreaks in the future. An Order has now been made by the Board of Agriculture and Fisheries empowering the Monmouthshire County Council to make regulations, applicable to any part of the county, for prohibiting the sale or disposal or removal from colliery premises of any horse, ass, or mule which has been used about the colliery, and prohibiting the burial or destruction of the carcass of any of these animals except under certificate given by an inspector, unless a reasonable opportunity has been given to the county council to ascertain by the mallein test or in some other way whether the animal was affected with glanders. The Order further enables the county council to prescribe the form of notice that shall be given of the intended sale, removal, or burial of one of the animals named.

Aberystwith Health Report.

The medical officer of health of the borough of Aberystwith, Dr. A. Thomas, states in his annual report that the birth-rate in 1910 was only 15·7 per 1000 of the total population, the death-rate from all causes 13·2 per 1000, and the infantile mortality-rate equal to 95 per 1000 births. The phthisis death-rate was 1·1 per 1000.

Tregaron Health Report.

The vital statistics relating to the rural district of Tregaron, in Cardiganshire, are in striking contrast to those of Aberystwith. In his report for 1910 Dr. Evan Lloyd states that the birth-rate was 16·7 per 1000 of the population, the death-rate from all causes 17·9 per 1000, the infantile mortality rate equal to 120 per 1000 births, and the death-rate from phthisis 3·2 per 1000. These death-rates are considerably higher than those which prevailed in the rural districts of England and Wales generally, and it is impossible not to connect them with the very unsatisfactory administration of the Public Health Acts which appears to prevail in Tregaron. Nearly four years ago Dr. E. P. Manby, after an inspection of the district on behalf of the Local Government Board, pointed out the direction which improvements should take, but little notice seems to have been taken of his suggestions. The inspector of nuisances is employed only three

[1] THE LANCET, August 13th, 1910, p. 517.

days in each week, and in view of the insanitary state of the district, where there is a population of nearly 8000 persons, the Local Government Board advised the appointment of an official devoting his whole time to his duties at an adequate salary. The district council refuses to accept this advice, notwithstanding the fact that the Board threatens to withhold its sanction to an appointment at an inadequate salary. The most urgent requirement of the district is a proper water-supply in the village of Tregaron, where there is a population of 750 persons. The existing supply is from wells, and when some of them are cleaned out periodically there is stated to be found a large deposit of offensive material, not unlike that accumulating in street gullies. Dr. Lloyd points out in his report that the lack of a proper water-supply is detrimental to the best interests of the village, for visitors naturally keep away from it, and the erection of new houses is prevented.

March 20th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Association of School Medical Officers.

AN Association of School Medical Officers for Scotland has recently been formed. The first meeting is to be held on Saturday, April 8th, at 11.30 A.M., in the offices of the Govan Parish School Board, 151, Bath-street, Glasgow. All medical officers connected with schools in Scotland are invited to be present. The first president is Dr. Ernest T. Roberts, principal medical officer to the Glasgow School Board, and the honorary secretary is Dr. J. King Patrick, County Buildings, Ayr.

Analysis of Food in Glasgow.

It is evident, according to the annual report on the operations of the analyst's department in Glasgow, that the department has been very useful, both for purely analytical work and for the purpose of scientific investigation. The number of samples examined exceeds that of any previous year, no fewer than 3646 being dealt with. Dealing with the analysis of samples received under the Food and Drugs Acts, the report says that, defective and cumbersome as these Acts undoubtedly are, yet their strict enforcement provides a valuable protection against the adulteration of the food of the people, nowadays scientifically conceived and carried out. Of the 777 official samples received, 105 were certified as adulterated, whilst 33 were reported against as being of doubtful or suspicious quality. Regarding sweet milk, it is stated that much controversy has taken place over the Sale of Milk Regulations (1901) Act. The point under discussion is the fat limit, which is 3 per cent. On Nov. 15th, 1909, the first batch of samples, 60 in number, was taken at the different railway termini in Glasgow, and in only one was the percentage below 3. The sample contained 2·9 per cent. of cream, but 15 per cent. of added water, therefore the percentage of fat in the original milk was well above 3. During the year 237 samples of butter were submitted, 17 of which were certified as containing foreign fat in amount ranging from 16 per cent. to 89·5 per cent., whilst the percentage of water in one sample was above the statutory limit—namely, 19 per cent. The number certified as adulterated was 19, which is equivalent to 7·6 per cent., compared with 27·4 for the previous year. Amongst the miscellaneous samples was a packet of smoking mixture and a wooden pipe received by the police. The smoking mixture, which was said to be exposed for sale and retailed to children in the city, consisted of chopped-up dried leaves and flowers of the common coltsfoot. It has been left to the medical officer of health to decide whether the smoking of the herb by children is likely to produce any injurious effect.

Paisley and the Home Treatment of Phthisis.

The medical officer of health of Paisley has submitted a report to Paisley town council dealing with the proposal recently put forward for the home treatment of phthisis. He points out that the burgh of Rutherglen has adopted a "scheme" to encourage the securing by the householder of an extra apartment for the sole use of the patient. He suggests that in Paisley, where cases are brought to light in which owing to the number of young children and lack of proper accommodation proper precautions for the prevention of infection are difficult to attain, in cases of necessity the local authority might, in the event of the householder securing a house with an extra room for the sole use of the patient, pay the difference of rent between the smaller and the larger house. The town council, on the strength of this report, has appointed a committee to confer with the trustees of the Clark Fund, which provides a grant of 5*s.* weekly to a number of afflicted persons in Paisley.

Milne Treatment of Scarlet Fever.

At a meeting held last week of the Renfrew and Clydebank Hospital Board a letter was read from the Local Government Board with regard to the appointment of a nurse by the Clydebank Town Council to carry out the Dr. Milne treatment of scarlet fever. The communication stated that the Board, while having no objection to the rubbing of children with eucalyptus oil as a means of preventing infection, could not regard it as a substitute for hospital treatment. The Board indeed could not regard the treatment as obviating the need of the hospital.

March 21st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Work of the Dublin Sanitary Association.

THE Dublin Sanitary Association is a voluntary society composed of persons interested in matters concerning the health of Dublin and its neighbourhood. At present it has a membership of 112 members. In spite of this meagre support from the public the council of the association undertakes courageously a large amount of work for the good of the community. The annual report of the year's work published last week touches on many subjects of prime importance. The council remarks that the condition of many of the primary schools, not only in Dublin but in many parts of Ireland, is so insanitary as to be a menace to public health. Especially is there a great need for proper medical inspection. The Commissioners of National Education have agreed that additional funds for the erection or improvements of school-houses are urgently necessary, and have declared that they would welcome similar provisions for medical inspection to those in force in England, but repeated applications to the Treasury have been without avail. Having noticed that an antivaccination crusade was being carried on in County Wexford, the council took steps, by correspondence in the newspapers and otherwise, to meet the arguments of the antivaccinationists. It has drawn attention also to a peculiar regulation of the Post-Office authorities regarding the outbreak of infective disease in the households of its employees. In the case of scarlet fever, small-pox, typhus fever, or epidemic cholera breaking out in the residence of a Post-Office servant he is to absent himself from duty, and report to the postmaster. In the case, however, of diphtheria, cerebro-spinal meningitis, measles, or enteric fever, he is not to absent himself, but is to report the circumstances to the postmaster. In either case the postmaster is to report to the chief medical officer in London, who is to decide what steps are to be taken. The council does not see any justification for placing diphtheria and measles in a different category from scarlet fever and cholera, and, moreover, thinks that reporting to the chief medical officer in London causes unnecessary delay. That the council keeps a close eye to neglect on the part of the sanitary authorities of the city is shown by the list of matters in which it was in correspondence with the cleansing committee of the Dublin corporation, viz.: the keeping of house dustbins in better repair, the repairing of the dust carts at present in use, the watering of the streets in front of the sweeping machines, the interference with the contents of the dustbins, the sweeping of the footways, and the overloading of manure carts and consequent scattering of the contents about the streets.

Royal Victoria Eye and Ear Hospital, Dublin.

The annual report of the Royal Victoria Eye and Ear Hospital presented last week showed that during the past year 1428 patients were admitted, the average daily number of beds occupied being 77·87. In the out-patient department 10,132 persons were attended. The hospital has a large adverse balance at the bank.

The Vacant Inspectorship of Lunacy.

Dr. W. R. Dawson, medical superintendent, Farnham House, Dublin, has been appointed by His Excellency the Lord Lieutenant to the vacant post of Inspector of Lunatic Asylums in Ireland.

Belfast and Midwives Legislation.

The inclusion in a Belfast corporation omnibus Bill at present before Parliament of clauses governing the practice of midwifery in Belfast is likely to cause perturbation among those who are anxious to obtain a Midwives Bill for Ireland as a whole. The Belfast Bill proposes to establish a Belfast Midwives Board with powers for the city of Belfast very similar to those possessed by the Central Midwives Board for England. It would establish a roll of midwives, and practice by others than those on the roll would be prohibited. The drafting of the Bill is far from clear, but it would appear that the Board would appoint examiners and conduct examinations of persons applying for admission to the roll. The Dublin School of Midwifery is likely to offer strenuous opposition to any attempt to deal with the midwives question as a purely local matter. It is, moreover, pointed out that it is not so much in the large cities as in country districts that harm is done by ignorant and untrained "handy women."

Double Tenement Houses in Belfast.

Mr. Peter Kerr-Smiley, M.P., has given notice that after the second reading of the Belfast Corporation Bill he will move:—

That it be an instruction to the committee which will in due course consider the Bill to insert a clause compelling owners of tenement houses in Belfast to provide adequate separate sanitary conveniences for each occupier.

On page 78 of the report of the Belfast Health Commission it is said: "A serious blot in Belfast housing is that in certain cases (streets are given) the houses which were built for one family are now double-tenanted—one family occupying the ground floor and a separate family the upper floor. In these cases the tenant of the upper floor has no access to the yard and conveniences except through the rooms of the lower tenant, and when, as frequently happens, the lower tenant is at work and has locked his rooms, the upper tenant may have for long periods no access at all to the conveniences in the daytime, while at night such access must be almost impossible. This condition of things is in all respects most unsatisfactory, and leads to fæcal matter being stored in the upper living rooms until an opportunity occurs to carry it to the yard. On the ground that the upper tenancies have in effect no sanitary accommodation, these double tenancies should be sternly abolished, or the provision of an external stairway from the upper rooms to the yard should be insisted on"; and on p. 101 of the same report the Commissioners recommend: "Double tenancy of houses should be prohibited save where suitable water-closet accommodation is provided for each portion of the house let independently."

Down County Infirmary.

From the report just issued it appears that during the year 1910 the number of patients admitted was 576, making, with those in hospital on Jan. 1st, 1910, a total of 621 cases treated during the year. 1254 patients attended the extern department and 49 tuberculous patients were admitted to the sanatorium. Both hospitals have been repainted and repaired, and a steam steriliser and destructor have been erected. Financially the total income was £2444 4*s.* 5*d.* and the expenditure £2308 17*s.* 3*d.*, leaving a balance of £135 7*s.* 2*d.* to credit.

March 21st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Reconstitution of the Institute of Medical Jurisprudence.

MEDICO-LEGAL investigations have been carried on since 1864 in Paris in a building in the department of the Prefecture of Police, situated at the extreme point of the *Cité*, and well known under the name of the Morgue. For some years past its condition has been deplorable; the building is too small, the freezing apparatus for the subjects is insufficient, and the post-mortem chambers, which are ill-lighted, very cold, and damp, are both inconvenient and unhealthy. There is little doubt that it was in the Morgue that Dr. Brouardel and Dr. Laye, contracted the germs of tuberculosis. At the creation, five years ago, of the Institute of Medical Jurisprudence with the diploma of *Médecin légiste*, the Faculty of Medicine naturally utilised this edifice, frequented at the present time by numerous students as well as by French and foreign medical men who pursue their studies in these lugubrious surroundings. For the last 30 years the State and the Ville de Paris have been negotiating the transfer and the reconstruction of the Morgue, each party endeavouring to lay the heavier share of the expense (estimated at £40,000) on the shoulders of the other. They have finally come to an agreement, the expenses to be equally shared between the two parties, and a new institute of legal medicine is to be raised in the Place Mazas, on the site where the prison, now demolished, stood. At the Chamber of Deputies M. Escudier, who was commissioned to report on this scheme, has recommended its adoption, and communicated the chief features of the organisation of the future institute. The establishment will comprise three distinct services—viz., (1) administration: the reception and recognition of corpses, &c., arranged in an infinitely more suitable manner than in the dingy and doubtful receptacles at the present Morgue; (2) post-mortem service and judicial operations, consisting of three necropsy chambers and a laboratory for medico-legal examinations; and (3) service for the study of medical jurisprudence, including an amphitheatre with seats for 200 students, a laboratory of toxicology, receptacles for animals to be used for experimentation, a museum, and a library. M. Escudier adds that the institute will also comprise rooms which, with the permission of the Vice-Rector, may be granted to men of science and workers desirous of undertaking researches or making experiments.

Transplantation of the Fibula.

At a recent meeting of the Society of Paris Surgeons M. Euguier showed a man who had suffered from osteo-sarcoma which had necessitated resection of 9 centimetres of his left humeral diaphysis. M. Euguier removed *en bloc* the bone, the tumour, and the brachialis anticus and triceps muscles which were affected, but the nerves and vessels supplying the arm were preserved. He then replaced the loss of substance by introducing into the medullary cavities of the divided portions of the humerus a piece of the right fibula 13 centimetres long and having its ends pointed. The fixation of the transplanted bone in its new position was assured by some taps with a mallet on the olecranon. In nine months after the operation the patient had good use of the arm and resumed his previous occupation of sawing timber in a forest. The upper end of the transplanted portion of the fibula united firmly with the humerus, but at its lower end there was a false joint between it and the inferior epiphysis of the humerus. The tumour was a cystic osteo-sarcoma with myeloplasia in the periosteum of the anterior lower half of the humeral diaphysis.

Pericardotomy.

Pericardotomy was recently performed by Dr. Jacob at the Val de Grâce Hospital, and an account of the case was communicated by M. Bochard at a meeting of the Surgical Society held on Feb. 22nd. The patient was a man, aged 23 years, who was admitted in a condition approaching asphyxia and presented signs of pericardial effusion which was probably of tuberculous origin. Two successive punctures having been without effect, Dr. Jacob resected the fifth costal cartilage under local anæsthesia, and incised the pericardium which was found to be somewhat adherent to the heart. On these adhesions being broken up by the finger a considerable amount of serous liquid escaped, after which the soft parts were brought together without suturing the pericardium and without drainage. The patient immediately experienced great relief and made a gradual recovery. The subsequent formation of two pleuritic patches as well as of obvious lesions in the pulmonary apices explained the etiology of the pericardial effusion.

March 20th.

THE SMALL-POX EPIDEMIC IN LONDON.—March 21st was the ninth successive day on which no case of small-pox was notified to the Metropolitan Asylums Board. Chicken-pox has been made a notifiable disease for a period of three months from March 22nd.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Cholera Prospects.

ALTHOUGH the Hungarian newspapers are jubilant over the announcement that cholera has disappeared from the country, sanitarians are not without misgivings as to what may happen when the warm season returns. This epidemic, now fortunately concluded, commenced at the end of last summer and continued until the end of January, 1911, with an average of one or two fresh cases notified every day during that month. Cases occurred in about 100 villages, in several towns, and even in the capital, Hungary presenting in this respect a great contrast to Austria, Germany, and France, where the disease obtained no permanent footing but was only represented by imported cases. In Hamburg about 18 years ago there was a disastrous epidemic which broke out in the harbour, but during the present cholera season there was only one case in Hamburg, the disease being prevented from spreading. It must be confessed that in these matters Hungary lags behind the western nations, and this defect is so well recognised here that the National Health Committee has communicated with the Minister of Public Health (who is also the Minister of Internal Affairs) recommending that the head of the hygienic section of the Ministry should proceed to Germany and make himself acquainted with the methods by which that country prevents the entrance of cholera by land across the Russian frontier or by the rivers coming from Russia. At the same time it deserves to be recorded that some good work was done in Hungary for the suppression of isolated outbreaks. This was the case at Mohacs, the first place invaded by the disease in this country. This town lies on both banks of the Danube, the water of which river was bacteriologically proved to be polluted with cholera bacilli. The first requisite was a supply of wholesome drinking water, and the use of water from the Danube was strictly forbidden. All the wells in the town were examined, and those which were not sufficiently clean were closed. Civilian health officers were sent into every district of the town, always accompanied by soldiers armed with rifles, to search for patients, because from the point of view of the spread of the disease a hidden cholera patient was of more importance than even ten fatal cases. This investigation conducted under the protection of an armed force had a good result. For while up to that time only fatal cases had been notified, and cholera patients were, so to say, not seen, on the first day of the systematic search a dozen patients were conveyed to the improvised cholera hospital. A fairly good ambulance vehicle was also provided for their removal in lieu of the common carts, which had been used for this purpose, and from which the vomit of the cholera patients fell on the road. By an exhibition of kindness and tact the health officers succeeded not only in calming the public alarm but also in convincing the people of the benefits of isolating patients. Eventually the people allowed their sick relatives to be carried to the hospitals, seeing that these institutions supplied them with clean beds and good food. The families of the cholera patients were also provided for by the Red Cross Society, and artisans who were unable to earn their living on account of the quarantine received one or two kronen daily as subsistence money. The healthy occupants of infected houses were isolated for five days. The municipal medical officers also went personally from house to house, searching for patients and impressing on the people the necessity of isolation, with the result that whereas formerly medical men were threatened with death if they dared to remove patients to the hospitals, such removals were now accomplished without resistance or difficulty. This energetic interference had the effect of stopping the cholera in five days, and in the ensuing five weeks there occurred only five sporadic cases. In Bata, a town in a rural district also on the banks of the Danube, where in one single day 30 cases were notified with 15 deaths, the board went to work in the same way as in Mohacs, the result being that in seven days there were no fresh cases. It must be said that these successful applications of hygienic measures were exceptional instances of their kind, and foci of cholera still remained scattered about the country. According to Dr. Schächter, chief editor of the *Gyógyászat* (*Therapeutics*), one reason of this was that the orders of the Central Board located in Budapest all came late. The Central Board did not authorise independent action by the local boards, which, therefore, had to write to the Ministry for instructions in every matter of detail, and this circumlocution caused much delay.

Incident at a Royal Hospital Visit.

His Majesty Emperor Francis Joseph recently paid a visit to the General Hospital, where he saw a patient, a Polish Jew, who, the chief physician said, was suffering from the same disease to which an American railway millionaire had fallen a victim. The patient thereupon remarked to His Majesty: "Alas! such is my luck. I wanted his money and I got his illness."

March 13th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Teaching the Importance of the Teeth.

THERE is a feeling among the dentists of the United States that dentistry should be made definitely a branch of the medical profession; in other words, that students intending to practise dentistry should be made to take a full course in medicine first. There is little doubt that there will soon be free dental clinics established in all the public schools of New York. At present the teeth of all pupils are examined, as well as their vision and hearing, and if defects are found the child is given a letter to his parents advising the importance of having them remedied. At the Academy of Medicine recently a public lecture on the teeth was given under the auspices of the Health Committee of the American Medical Profession, and was largely attended. The lecturer pointed out the far-reaching results on the ribs and other portions of the human frame of dentures which had been allowed to persist in distorted shape; he also foretold the early disappearance of the wisdom teeth from members of the human race.

A New Infant Asylum.—New Ward in Cancer Hospital.

Governor Dix, of the State of New York, dedicated the new Hebrew Infant Asylum at Aqueduct-avenue and Kingsbridge-road on Feb. 23rd. It is a five-storey red brick structure, with accommodation for 450 children, and cost £90,000.—A new ward for incurables in the New York Skin and Cancer Hospital was opened on Feb. 17th. Malignant cases, which other institutions will not receive, will be admitted to this ward. The research laboratory is being extensively equipped with apparatus obtained mainly in Europe.

The Latest Move by Anti-vivisectionists.

A Bill has been introduced into the New York State Legislature "to prevent cruelty by conferring upon the board of regents of the University of the State of New York the power of supervision of experiments upon living animals." No experiments are to be permitted unless for knowledge useful in saving or prolonging life, and no experiment is to be permitted to demonstrate known facts. Supervisors of animal experimentation are to be appointed upon certification from humane societies. They are to have authority to enter any place licensed for vivisection. Annual reports must be made by experimenters of the number of experiments, animals used, anæsthetics, if any, and results. Anyone performing or assisting in vivisection in violation of the Act is punishable by one year's imprisonment. The object of all such legislation, apparently fair on the face of it, is to permit the entrance of lay inspectors to the laboratories of experimental physiology, whose reports, couched in unscientific and uncomprehending language, will probably cause such a wave of popular hysteria as to close up the laboratories for ever.

An Arrest for Witchcraft.

At Reading, Pa, a quack has been arrested on the charge of practising witchcraft as a "hex doctor." His patient was a young child suffering from marasmus. When his medicines produced no improvement, he informed the mother that the child was under a spell and that he was about to make an incantation that would break every bone in the body of the malevolent person who had cast the spell. His subsequent performances threw the child's mother into acute hysteria,

whereupon her husband brought about the quack's arrest on the charge aforesaid.

Continued Opium Seizures.

A few weeks' activity on the part of the Federal officials has resulted in the seizure of four tons of smuggled opium of a total value of over £20,000. It was found that practically all the opium was smuggled in from Canada, Mexico, or from the East through the Puget Sound territory. The seized opium will be sold by auction to recognised wholesale druggists.

Diphtheria in Baltimore.

At the presesent time diphtheria is very prevalent in Baltimore. It first showed itself in Johns Hopkins Hospital, and quickly spread amongst patients, nurses, physicians, and students. On Feb. 25th Dr. J. Whitridge Williams, dean of the Johns Hopkins medical school, ordered the school to be closed until further notice. Since then most of the hospitals in Baltimore have been closed in order to protect their patients. The disease has spread considerably in the city, and a large number of Johns Hopkins medical students are quarantined in their own homes.

Typhoid Fever Epidemic in Erie, Pennsylvania.

In Erie, Pa., a town on the Canadian border, a typhoid fever epidemic of great virulence is raging. Ten deaths from the disease were reported during the 24 hours ending March 1st. It is estimated that taking into consideration the number of cases in Erie itself and its suburbs and in the small towns across the Canadian border there are 1000 cases of typhoid fever in the district. The cause has not been yet determined, but the outbreak is thought to be due to typhoid-infected sewage which has been allowed to flow untreated into Lake Erie in the vicinity of the town of Erie. The question of the pollution of rivers, streams, and lakes is now receiving the attention of both Federal and State authorities in this country; especially is the question of the pollution of the Great Lakes being discussed by health authorities. Surgeon-General Walter Wyman, of the Public Health and Marine Hospital Service, is of the opinion that the national Government should intervene, and that the careless and criminal pollution of the Great Lakes which is now going on should, in the interests of the community at large, be stopped as soon as possible. The stumbling-block to the enactment of legislation to this effect is as to how the State and Federal laws bearing on the point are to be interpreted—that is to say, whether by virtue of the constitution the national Government has the right to interfere. This point is likely to be settled in a short time.

Appointment of Dr. W. Smith as Superintendent of Johns Hopkins Hospital.

Dr. Winford H. Smith, who for the past two years has filled the position of superintendent of Bellevue Hospital, New York, has resigned to accept a similar post at the Johns Hopkins Hospital, Baltimore.

March 11th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Smoke Nuisance at Calcutta.

THE health committee of the corporation will shortly consider the recommendations of the Bengal Smoke Nuisance Commission regarding the modification of the existing Act. In a letter from the President of the Commission it is stated that a great nuisance arises at night from the open flames of oil lamps, 20,000 or 30,000 of these being in various shops and small factories in the town and suburbs. It is calculated that the smoke is equal to about 200 ordinary factory chimneys. The amendment of the Act to prohibit the use of such lamps is suggested, as the smoke is of high gravity and a fruitful source of throat and lung complaints.

Cocaine Smuggling.

During recent months the Excise authorities have engaged in a vigorous campaign among foreign seamen coming to Bombay and have succeeded in seizing large quantities of cocaine before it could be passed on to those on shore who exploit the traffic. But the "importers" will risk punishment in the hope of landing a consignment which need not be large in bulk or original value to ensure an amazing profit. The authorities in Bombay are aware that the European seamen in question have European confederates in the city. It may suggest itself to those concerned that if the shipmasters are also fined when contraband is discovered on board their vessels, the fact that the fines are distributable and recoverable from all members of the crew in rateable proportions to their wages will have the effect of providing the authorities with many valuable allies on board the ship. This is done on the other side of India, and that the method has been most satisfactory in its working.

Plague Measures in Moulmein.

Captain W. F. Brayne, I.M.S., officer on general plague duty in Burma, in his recent inspection note on Moulmein, makes some interesting remarks. He deals with the failure of the plague measures and condemns the procedure. The lodging-house by-laws were used, not as a means of keeping the houses sanitary, but for the collection of revenue in the form of a lodging tax. Captain Brayne's opinion is that plague work in Moulmein in the past has been of no value, and that the money spent has been wasted. He recommends several measures, amongst them the appointment of a European commissioned officer on special plague duty for Moulmein only and the formation of a sanitary committee. As the former will entail expenditure which the Government is not likely to sanction, he is in favour of abolishing plague measures altogether and leaving the treatment of plague to the civil surgeon, as he deals with other infectious diseases.

The Spread of Cholera.

Lieutenant-Colonel Leonard Rogers, I.M.S., delivered an interesting address on cholera at a meeting of the Asiatic Society recently held in Calcutta. He remarked upon ancient references to a disease which may well have been cholera, and referred to the terrible epidemics that have occurred in the past hundred years both in Asia and Europe. He said that the epidemic in Russia in 1910 caused over 90,000 deaths up to the end of last September. The outbreak in Italy resulted in 1000 deaths in Naples district during that month, while the disease also appeared in Portugal, Turkey, and Madeira. He went on to say that numerous cases had also occurred in Eastern Germany, so that a large portion of Europe had now been invaded. The histories of the earlier epidemics always showed a marked lull during the winter months, and it was just possible that especially severe cold might destroy the infection, but unfortunately all the facts pointed to a still further spread of the disease, especially in Southern Europe, during 1911, the position being more serious than at any period since the 1883 outbreak in Egypt and the South of Europe. With regard to the prospects in England there was little ground for alarm, as the English inspection system had been uniformly very successful in preventing any spread from imported cases, while the excellent water-supplies of English towns had robbed the disease of its principal terrors. The same remark applied to a considerable extent to Germany and France, but it was to be feared that the more southern parts of Europe still frequently presented favourable opportunities for the spread of cholera, owing to sanitation being less advanced in their towns.

The late Surgeon-Major R. E. Wrafter.

I regret to announce the death of a veteran Indian officer, Surgeon-Major R. E. Wrafter, who died in Dehra Dun on Jan. 23rd in the seventy-eighth year of his age. Major Wrafter entered the late Bengal (H.E.I.C.'s) Medical Service in the year 1848, just in time to serve through the Punjab campaign of 1848–49, in the course of which he was present in the affair of Ramnuggar, the passage of the Chenab river, and the battles of Sadoolapur, Chillianwala, and Guzerat. At the outbreak of the Mutiny he was at Meerut, and subsequently took part in the engagements of the Hindun (May 30th and 31st) and of Budlu-ka-Sarai (June 8th). He was present throughout the siege and capture of Delhi, at the action of Nudjuffghar on August 25th, 1857, at the siege and capture of Lucknow, and was on service till the very end of the long struggle, being engaged throughout the campaign in Rohilkhand, including the attack on Fort Rooya, the action at Allygunj in Oudh, the capture of Bareilly, and the pursuit of the rebels at Shahjehanpur and Mohumdee. He entered civil employ in the year 1864, and was civil surgeon at several stations in the United Provinces and the Punjab. After 40 years' service Major

Wrafter retired and in 1888 settled at Dehra Dun. His unfailing kindness and sympathetic disposition endeared him to all with whom he came into contact.

United Provinces Exhibition, Allahabad.

It is impossible to give a detailed account of the many exhibits, but at the same time it is worthy of note to mention the enterprise of some British firms. It can safely be said that Messrs. Down Bros'. exhibit was one of the best. It showed a collection of surgical and other appliances of great value, and besides this their stall was highly instructive, especially to Indians who visited this exhibition. They put in place a complete surgical ward, an anæsthetising chamber, an operating theatre, a sterilising room—comprising every piece of necessary furniture and appliance for a complete operation in an up-to-date hospital. Besides operating tables and aseptic glass tables, there were diagnostic finger-stalls, clamps, forceps, cystoscopes, aero-urethroscopes, and every surgical contrivance. Messrs. Burroughs, Wellcome, and Co. had a most interesting stall showing their well-known tabloids and various therapeutic sera, besides tinctures, &c. Of particular interest to the tropics were their samples of tubes containing quinine hydrochloride in 4-grain treatments. Jeyes' Sanitary Compounds Co., Limited, were exhibiting their disinfectants. Pearson's Antiseptic Co. likewise were exhibiting the products which bear their name. On behalf of Messrs. Watson and Sons, London, Messrs. Smith, Stanistreet, and Co., of Calcutta, were exhibiting a very complete X ray outfit. This Calcutta firm made a very excellent show. The Empire Engineering Co., of Cawnpore, showed a most interesting lot of sanitary appliances of value in Indian municipalities. Lastly, *Indian Public Health*, the only sanitary journal in the East, had a stall. The exhibition was a great success.

Feb. 24th.

Obituary.

ANDREW SMART, M.D. EDIN., LL.D., F.R.C.P. EDIN.,

CONSULTING PHYSICIAN, ROYAL INFIRMARY, EDINBURGH, ETC.

Dr. Andrew Smart, whose death on March 8th at the residence of his son, 78, Bertram-road, Hendon, N.W., was noted in our issue of last week, was in his eighty-seventh year. He was the youngest son of an English gentleman who owned large properties in Jamaica. His mother was a Miss Christie, a member of a well-known Stirlingshire family. He took his degree as M.D. at the University of Edinburgh in 1862, and in 1865 was elected a Fellow of the Royal College of Physicians of Edinburgh. He was appointed assistant physician to the Edinburgh Royal Infirmary in 1880, becoming in 1900 senior ordinary physician to that institution, the appointment being renewed for a term of five years 12 months later. He retired in 1906 and was appointed a consulting physician to the infirmary. He was at one time assistant to the professor of the practice of medicine at the University of Edinburgh, and to the professor of clinical medicine, and was a lecturer and examiner in clinical medicine and therapeutics at the Royal Infirmary, besides holding many minor appointments. He was an Ext. Memb. of the Royal Medical Society of Edinburgh, and an honorary member of the New York State Agricultural Society. St. Andrews University conferred on him its honorary degree of LL.D. Dr. Smart is said to have been the first to discover the presence of micro-organisms in living tissue, the discovery being made in connexion with his work on rinderpest in 1865, the results of which are embodied in his reports on rinderpest to the Lord Provost, magistrates, and town council of Edinburgh. He there showed that freshly drawn rinderpest blood presented under a high magnifying power chains of minute bodies lying between the blood corpuscles and completely surrounding them and the other histological elements. These chain-like structures, in virtue of their prodigious numerical superiority, are seen to occupy the entire microscopical field. It is said that Dr. Smart's delineation of the blood in rinderpest, with the accompanying reports, originated the belief in the germ origin of disease and led to the earliest statement on record expressive of what is now understood as the "germ theory of disease." Dr. Smart's reports were translated into several continental tongues and attracted commendation from the leading pathologists, British and continental. His studies in anæmia appeared in THE LANCET of Feb. 18th and 25th, 1893. A little book by Dr. Smart, entitled "Germs, Dust, and Disease," is a republication of two lectures—the first on Preventable Disease, the second on Occupational Diseases—delivered by him to popular audiences. Both represented an advanced stage of thought at the time they were delivered, and much that was there laid down has already become, or is in process of becoming, generally adopted.

Dr. Smart is survived by a widow, four sons (one of whom is Dr. A. G. H. Smart of Kelantan, Federated Malay States), and two daughters.

WILLIAM PALEY, M.D. LOND., M.R.C.S. ENG., L.S.A., J.P.

THERE passed away on March 13th, at the residence of his son-in-law, Mr. Alfred Saunders, at Ealing, a worthy and highly respected representative of the older school of provincial consulting physicians, in the person of Dr. William Paley. Dr. Paley was in his 95th year, and had retired from practice since 1894. He was a son of the Rev. Edmund Paley, rector of Greatford, and consequently a grandson of the Rev. William Paley, Archdeacon of Carlisle and Prebendary of St. Paul's, widely known through his "Evidences of Christianity" and "Natural Religion." His eldest brother was Professor F. A. Paley, the distinguished classical scholar of Cambridge, and later of Stonyhurst. Dr. Paley was educated at Christ's Hospital, and received his medical training at the London Hospital. He took the L.S.A. in 1837 and became M.R.C.S. in 1839. In the early "forties" Dr. Paley went to Peterborough as house surgeon to the Infirmary and Dispensary. He soon decided, however, that his bent was for practice as a consulting physician rather than as a general practitioner. In 1842 he took the M.D. of London, and soon allied himself with Dr. Skrimshire, a well-known consultant in Peterborough, whom in 1846 he succeeded in the post of physician to the Infirmary, and the work done at Peterborough by himself, by his younger colleague and great friend, Dr. J. T. Walker, and by Dr. Walker's father, forms a remarkable feature in provincial medicine. He retained his official connexion with the Infirmary for 36 years. On resigning in 1882, Dr. Paley was appointed physician extraordinary, his post on the staff being then filled by his son, Dr. W. E. Paley. On the death of the latter in 1894, Dr. Paley retired altogether from practice. Dr. Paley's consulting practice covered a very large field—viz., the wide district surrounding the city of Peterborough and lying in the four counties of Northampton, Lincoln, Cambridge, and Huntingdon. He retained his mental and bodily vigour up to the last, having been a man of abstemious habits and devoted to active outdoor exercise—a fisherman, a keen sportsman, and an excellent shot. He was a man of strong religious convictions and an active worker in charitable and social movements. He was a justice of the peace for the Liberty of Peterborough, one of the first aldermen of the borough, and its third mayor, being elected to that office in 1877. Politically a Whig, he followed the leaders of the Liberal Unionist party when they allied themselves with the Conservatives in the "eighties." He was at one time president of the Cambridge and Huntingdon Branch of the British Medical Association. Dr. Paley married Miss Harriett Simpson, by whom he had four sons and two daughters, of whom the daughters alone survive their father.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Witthauer, oberarzt of the Deaconess Hospital in Halle. Dr. Otto Deasch, professor of histology and embryology, and at the time of his death dean of the medical faculty of the University of Gratz. Dr. Georg Kapsammer, physician to the Franz Josef Dispensary and to the Jubilee Hospital of the City of Vienna. His published monograph on the diagnosis of functional diseases of the kidney is held in high repute. Dr. L. Russ, professor of clinical medicine in the University of Jassy. Dr. A. Chavanne, formerly physician to the Lyons Hospital and Deputy for the Rhône. Dr. L. Orfila, professeur agrégé of the

Paris Faculty of Medicine. Dr. Aloysius O. J. Kelly, professor of pathological anatomy in the Woman's Medical College of Pennsylvania in Philadelphia and editor of the *American Journal of the Medical Sciences*. Dr. S. D. Hopkins, professor of the diseases of the nervous system in the Denver and Gross College of Medicine.

Medical News.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following candidates have passed the primary part of the Fellowship examination:—

E. Connell; C. Cooper, L.R.C.P. & S. Irel.; H. A. S. Deane; T. W. Harley, M.B., B.Ch. Dub., Captain I.M.S.; A. Humphreys; J. C. Khambatta, M.B., B.Ch. Edin.; T. J. R. Maguire; and J. C. Sproule.

The following candidates have passed the final part of the examination and have been admitted Fellows of the College:—

L. L. Cassidy, M.B., B.Ch. Edin., and R. V. Slattery, M.B., B.Ch. R.U.I.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bonn:* Dr. R. Cords has been recognised as *privat-docent* of Ophthalmology.—*Budapest:* Dr. K. Pellyesniczky has been appointed to the chair of Anatomy.—*Catania:* Dr. Giovanni De Gaetani of Palermo has been recognised as *privat-docent* of Medical Pathology.—*Frankfort:* It has for some time past been expected that this important town would be made the seat of a university, and several scientific institutes which would naturally form part of the equipment of a university have already been for some years in active operation. It is now announced that three faculties of the proposed university may be expected to be opened in 1914—viz., those of Medicine, Philosophy, and Law.—*Greifswald:* Dr. Lange, director of the Ear Clinic, who has been invited to accept the chair of Otology at Erlangen, has decided to remain.—*Lemberg:* Dr. J. St. Hornowski has been recognised as *privat-docent* of Pathological Anatomy.—*Prague (German University):* Dr. Alfred Kohn has been promoted to the Ordinary Professorship of Histology; Dr. Gottlieb Salus has been recognised as *privat-docent* of Hygiene.—*Vienna:* The vacancy in the "Third" Medical Clinic and Professorship caused by Dr. von Strümpel's retirement is to be filled by the appointment of Professor Sahli of Berne. The other names mentioned in connexion with this important appointment were Professor Chvostek of Vienna and Professor Ortner of Innsbruck. Dr. Hans Salzer has been recognised as *privat-docent* of Surgery.—*Zürich:* Dr. Otto Busse of Posen has been appointed to the chair of Pathological Anatomy in succession to Dr. M. B. Schmidt, who is going to Marburg.

ROYAL FREE HOSPITAL.—H.R.H. Princess Christian, the President of the hospital, who was accompanied by H.H. Princess Marie Louise, presided at the eighty-third annual court of governors of the Royal Free Hospital, which was held on March 15th. There was a large attendance of governors. In moving the adoption of the report, Mr. Chaplin referred to the lamented death of King Edward, who had been a patron of the hospital. After referring to the work of the hospital during the past year and to the improved financial position, he pointed out that owing to the great pressure made by the sick poor upon the resources of the charity it had been necessary from time to time to make structural alterations and additions to the buildings. At the present time the great need of the hospital was a new out-patient department and for this purpose it was absolutely essential to obtain additional land, all the available space being already fully occupied. Negotiations were in progress and it was hoped that the difficulty of obtaining the necessary land may be overcome in the near future. After referring to the increased cost of maintenance of the hospital, Mr. Chaplin stated that the financial anxiety of the committee had been greatly relieved by the generous legacy of £50,000 bequeathed by the late Mr. H. Silver, who had for nearly 40 years been an active member of the committee and weekly board of the hospital. Reference was made to the cordial relations of the hospital with the London School of Medicine for Women, and in conclusion Mr. Chaplin announced that after many years of service Mr. Conrad Thies, the secretary, was relinquishing his post, but it was hoped that he would continue in the future to give them the benefit of his long experience in hospital affairs by taking an active part in the administration of the hospital. The Bishop of Islington moved the appointment of the committee of management and treasurers. The usual votes of thanks closed the proceedings.

THE ORDER OF THE CROWN OF ITALY.—The King has given to the undermentioned His Majesty's Royal licence and authority to accept and wear the decoration of Officer of the Order of the Crown of Italy which has been conferred upon them by His Majesty the King of Italy, in recognition of valuable services rendered by them at the time of the earthquake at Messina in the year 1908: Michele Asphar, M.D., Sliema; Placido Biasini, M.D., Sliema; Salvatore Borg, M.D., Hamrun; Salvatore Ellul Grech, M.D., Valletta; Edgar Henry Ferro, M.D., Sliema; Paolo Grech, M.D., Birchircara; Francesco Jaccarini, M.D., Senglea; Salvatore Muscat, M.D., Balzan; Emmanuele Said, M.D., Valletta; Surgeon-Captain Robert Samut, King's Own Malta Regiment of Militia, Sliema; Giuseppe Wirth, M.D., Valletta; and Carol Zanghi, M.D., Floriana.

THE TUBERCULIN TREATMENT: BRIGHTON.—The Brighton town council at its meeting on March 16th adopted the recommendation of its sanitary committee with respect to the tuberculin treatment at the Brighton Sanatorium. Dr. Duncan Forbes, the medical officer of health, after a study of the results obtained in the German sanatoriums, introduced tuberculin treatment at Brighton, and the results have been satisfactory. Dr. Forbes says: "In most cases, in order to obtain a cure or lasting benefit, the tuberculin treatment has to be continued for at least one year. The result is that at present patients are discharged who are steadily improving under tuberculin treatment, but long before their cure is obtained. It would therefore seem necessary, in order that the benefits derived from our sanatorium treatment may be increased to a maximum, that discharged patients who have benefited from tuberculin treatment should return at intervals to the sanatorium for further injection with tuberculin." Dr. Forbes advised the extension of the sanatorium treatment, a suggestion readily agreed to. In April last a ward was opened at the sanatorium for cases of tuberculous joints. Six cases of spinal caries, 5 of hip disease, and 2 of knee-joint disease had been admitted, and 12 of these still remained in hospital.

UNIVERSITY OF LONDON: FACULTY OF MEDICINE.—A meeting of the Faculty was held at the University on March 18th. Dr. Norman Moore took the chair and the election of Dean for the remainder of the period 1910–12 was proceeded with. Professor Sidney Harris Cox Martin was proposed by Dr. W. P. Herringham and seconded by Mr. H. J. Waring. The proposition was put by the chairman and carried unanimously. Professor Martin then took the chair. The constitution of the Board of the Faculty was determined as follows: (*a*) The Dean of the Faculty (Professor S. H. C. Martin); (*b*) the secretary of the Faculty (Mr. H. J. Waring); (*c*) the members of the Faculty who are also members of the Senate (at present Sir William Allchin, Dr. H. A. Caley, Professor A. W. Crossley, Professor R. J. Godlee, Sir Alfred P. Gould, Mr. Leonard Hill, Dr. E. G. G. Little, Professor J. M. Thomson, Dr. J. Wade, and Dr. A. D. Waller); (*d*) the chairmen of the following boards of studies: preliminary medical studies (Professor F. Womack), intermediate medical studies (Dr. C. Addison), advanced medical studies (Sir Francis Champneys), dentistry (Sir Alfred P. Gould), hygiene and public health (Dr. H. T. Bulstrode), physiology (Dr. M. S. Pembrey), human anatomy and morphology (Mr. F. G. Parsons); (*e*) representatives nominated by the following boards of studies: preliminary medical studies—two (Professor F. Womack and Mr. J. A. Gardner); intermediate medical studies—two (Professor W. D. Halliburton and Mr. F. G. Parsons); advanced medical studies—four (Mr. Stanley Boyd, Dr. Sidney Phillips, Mr. S. G. Shattock, and Dr. H. Tilley); and (*f*) not more than six other members of the Faculty, to be appointed by the Faculty after nomination in each case by at least two members. The following members were proposed, seconded, and elected: Mr. Raymond Johnson, Mr. H. L. Eason, Dr. R. C. B. Wall, Dr. E. I. Spriggs, Dr. N. H. Alcock, and Dr. Louisa

B. Aldrich-Blake. It was resolved that the Senate be requested to publish the numbers of the successful candidates at the several examinations for medical degrees immediately after each meeting of the examiners. The election of two persons to represent the Faculty in the Senate for the period 1911–15 then took place. The following gentlemen had been proposed and seconded: Dr. W. P. Herringham, Mr. L. E. Hill, and Mr. H. J. Waring. The ballot resulted as follows: Mr. Hill 35 votes, Dr. Herringham 30 votes, and Mr. Waring 28 votes. Mr. Hill and Dr. Herringham were declared to have been elected. The meeting then terminated.

A PERMANENT MEDICAL EXHIBITION.—With the object of giving to medical men an opportunity of viewing the latest productions of pharmaceutical science and art, and incidentally of providing a central meeting place for medical men and their colleagues, Messrs. Burroughs, Wellcome, and Co. have opened a permanent exhibition at 54, Wigmore-street, London, W. A large room on the ground floor is fitted with a series of glass cases in which are displayed classified groups of "tabloid," "soloid," and other medicaments for use in the various departments of medicine and surgery, together with many ingenious compact cases for the pocket, for travelling, and for the consulting-room. Medicine chests, surgical dressings and instruments also receive attention. Vaccines and vaccine therapy are well exhibited in a large case, where are also shown specimens of the suprarenal capsule, thyroid gland, and pituitary body of man and other animals. To the display of diphtheria serum are added illustrations of the mode of preparation and so forth. In addition to the pharmaceutical products of the firm there is an exhibition of photographic chemicals and preparations for staining lantern slides. Various historical exhibits add to the merits of an instructive and entertaining exhibition, which is open from 9 A.M. till 6 P.M. on ordinary weekdays and from 9 A.M. till 1 P.M. on Saturdays. Journals and works of reference are available, and provision is made for medical men to write letters.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.—A council meeting of this association was held at 34, Copthall-avenue, E.C., on March 16th, Mr. D. B. Balding presiding. The honorary secretary, Dr. Major Greenwood, and Mr. A. A. Napper reported that they had attended on behalf of the association the last meeting of the Poor-law Conference at Norfolk House, and that their recommendations *re* Poor-law medical reform had been adopted by that Conference with some slight modifications. Dr. Greenwood had also sent a copy of the same to the Local Government Board with a request that it might be laid before the departmental committee now sitting. Several letters were considered by the council from country members complaining of the addition to the work of the district medical officer without any extra remuneration caused by the recent Old Age Pension Acts. In many cases orders were given for attendance on old-age pensioners who in the past had been accustomed to pay a private medical practitioner. Before the passing of the Pension Acts the relatives had been willing to assist the pensioners, but now they held aloof, and the burden fell on the district medical officer. The chairman pointed out that it was illegal to place old-age pensioners on the permanent list of the district medical officer, and that a special order must be granted in each case. The council then considered the need of a closer communication between the executive of the association and the members generally throughout the country through the medium of a small periodical under its control, to be sent to all its members at regular intervals throughout the year.

THE MARYLEBONE HEALTH SOCIETY.—The annual meeting of this society was held in the council chamber of the town-hall, Marylebone, on March 20th, when the Mayor of Marylebone presided. In opening the proceedings the Mayor, after pointing out the splendid work which was done by the society in supplementing the work of the medical officer of health and the public health committee of the council, said he looked forward to the time, which would, he thought, be very short, when Marylebone, following Edinburgh, would reduce the death-rate from tuberculosis by 50 per cent. Dr. Charles Porter, the medical officer of health, in moving the adoption of the report, congratulated the society on the good work which it had done and made a strong appeal for more voluntary workers. He quoted the figures of the infantile death-rate since 1899, and showed that from that year, when the rate per 1000 births registered of deaths under one year of age was 191·5, there had been a steady decline to 98·9 in 1910. Dr. Eric Pritchard, who seconded the adoption of the report, hoped that the time would soon come when mothers would rear their children in a more intelligent manner. He would like to see less of the so-called maternal instinct and more of common-sense. The report was carried unanimously. The Rev. J. A. Beaumont and Miss Broadbent also addressed the meeting. Dr. Halliday Sutherland, in proposing a vote of thanks to the Mayor and council, spoke in terms of praise of the anti-tuberculous dispensary in connexion with the Health Society, remarking that they owed a deep debt of gratitude to Dr. Porter for the work which had been accomplished.

IRISH MEDICAL SCHOOLS AND GRADUATES' ASSOCIATION.—This association celebrated its St. Patrick's festival dinner on March 16th at the Hotel Cecil, Strand, London, when Sir Charles Cameron, the President, occupied the chair. The number of guests present was nearly 300, and included Sir Thomas Barlow, Sir James Dewar, Professor W. H. Thompson, Sir James Crichton-Browne, Mr. Henry Curtis, Dr. H. Macnaughton-Jones, Dr. M. J. Bulger, Mr. G. W. Dawson, Mr. T. Hobbs Crampton, Dr. William Douglas, and Mr. Campbell Boyd. The event of the evening was the presentation to Dr. Samuel Hamilton of the Arnott Memorial Medal. Dr. Hamilton was introduced by Mr. Crampton, who gave details of the great act of heroism performed by Dr. Hamilton at the Newport Dock disaster. Dr. Hamilton descended into a deep trench, the sides of which were caving in, and performed a surgical operation on a poor victim of the disaster who was pinned under some wreckage, finishing the operation as the tide rose in the trench. Dr. Macnaughton-Jones, in proposing the toast of "The Royal Colleges," made an eloquent speech for a grant in aid to the Royal College of Surgeons in Ireland, and Sir Thomas Barlow, in his reply to the toast, assured those present that the English Royal Colleges had every sympathy with such a movement. Dr. J. A. Macdonald, in submitting the toast of "Our Guests," made a graceful allusion to the presence of ladies at the dinner. Sir James Dewar, in replying to this toast, pointed out how pure science was indebted to Ireland. He interspersed his speech with many witty stories. The toast of "The Association" was entrusted to Sir James Crichton-Browne, who commenced by describing the gathering of that night as almost the most brilliant medical assembly he had attended in London. Sir Charles Cameron, in replying to the toast, made a capital after-dinner speech and gave an interesting account of the success and progress of the association. The evening concluded with a vote of thanks to the President, proposed by Professor Thompson.

DONATIONS AND BEQUESTS.—Under the will of the late Mrs. M. H. Christie the following bequests have been made: £4000 to the committee or association formed for the purpose of maintaining the David Lewis Manchester Epileptic Colony for the general purposes of the committee or association; £4000 to the Northern Counties Hospital for Incurables, as an endowment for the provision of five pensions of at least £20; £4000 to the Victoria Dental Hospital, Manchester; £4000 to the Manchester Northern Hospital for Women and Children; £4000 to the Christie Hospital, Manchester; £2000 to the Manchester and Salford Sick Poor and Private Nursing Institute; and £1000 to St. Mary's Hospital, Manchester. The testatrix also left £5000 to the Zenana Bible and Medical Mission for the erection of a hospital in India; £3200 to Epsom College (Royal Medical Foundation), as an endowment for the provision of two pensions of at least £40 each for medical men; and £500 to the Infants' Hospital in Vincent-square, Westminster.—The late Mr. W. Taylor of Eastbourne has by will, subject to the life interest of his wife, left £2000 to the Liverpool Royal Infirmary. £2000 to the Royal Hospital for Incurables, Putney; £2000 to the Hospital for Consumption and Diseases of the Chest, £2000 to the Cancer Hospital, £2000 to the Royal Free Hospital. £2000 to the Home for Confirmed Invalids, Highbury; £2000 to the North London Homes for Aged Christian Blind Men and Women, Hornsey Rise; and £1000 to the Samaritan Free Hospital for Women. He also

left £21,000 upon trust for certain relatives in each case for life, and subject thereto the money will be divided equally between the above-named hospitals. The Worshipful Company of Goldsmiths has sent £1000 to St. Bartholomew's Hospital towards the reduction of the building debt and £1000 to King's College Hospital, being the third donation of the Company towards the Removal Fund.

HAMPSTEAD PUBLIC MEDICAL SERVICE.—The second annual meeting will be held at 4.30 P.M. on Wednesday, March 29th, in the fencing studio of the Hampstead Conservatoire, Swiss Cottage. Anyone interested in the Public Medical Service movement is cordially invited to be present. The honorary secretary is Mr. A. R. Roche, M.R.C.S., &c., 99, Queen's-crescent, Haverstock Hill, N.W.

THE FLORENCE NIGHTINGALE MEMORIAL.—It has been decided by the joint committee chosen towards the end of last year that the memorial to Florence Nightingale shall consist of a statue to be erected in London, and an annuity fund for the relief of trained nurses who are destitute through inability to provide for old age or infirmity. A public meeting, under the presidency of the Lord Mayor, will be held at the Mansion House on March 31st in support of this proposal.

WORTHING CARE SOCIETY.—Proof of the good work that can be accomplished by a Children's Care Society comes from the borough of Worthing. For the ten years ended 1908 the infant mortality for the borough was 116 per 1000 births. In 1909, in only a part of which the society was working, the figure was brought down considerably, while for 1910 the mortality rate was only 66 per 1000. These figures are very encouraging, for they show what can be done when an organised campaign is taken up against the mortality amongst infants. Some time ago Worthing adopted the Notification of Births Act and also appointed a health visitor. It is further claimed for the society that the school attendance has increased from 87 to 92 per cent., thanks to the attention paid to the children in clothing and feeding.

MOSELEY HALL CONVALESCENT HOME FOR CHILDREN, BIRMINGHAM.—The nineteenth annual report stated that 857 children were admitted during the year compared with 976 in 1909. The average stay was 23 days. Of the 857 children admitted 450 were recommended by subscribers, 116 were transferred from the Children's Hospital, 291 from the General, Queen's, and other hospitals, the district nursing societies, dispensaries, &c. The income amounted to £2157, and the expenditure was £2387, leaving a deficiency of £230, compared with £212 in 1909. The average cost per head per week for maintenance was 3*s.* 6·8*d.*, compared with 3*s.* 7*d.* Mr. Tillyard, the organising secretary of the Charity Organisation Society, in proposing the election of officers at the annual meeting, said that the society was taking up the difficult question of following up the medical inspection of schools, and they thus came across a large number of delicate children and those recovering from illness. He pointed out the special need there was for dealing with consumptive children. Scarcely any sanatoriums admitted children, and it was not always desirable to mix children with adults. Moseley Hall was doing the work to a slight extent. If the committee possessed greater resources in the future he would like to suggest the provision of a wing or department for consumptive children. He also referred to the work of the open-air school, and pointed out that it could only be used by children who lived near the tramway serving the district. He asked whether it were possible to make arrangements for children to sleep at the home and attend the school in the day, so that the benefits of the school might be more evenly distributed over the city.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Milk Legislation.

SEVERAL important local authorities are promoting private Bills this session asking Parliament for powers to control the milk-supply of their respective areas. This fact has been brought to the notice of the President of the Local Government Board. Mr. BURNS has replied that he hopes that it may be possible to deal with the whole subject of milk-supply this session. Local authorities have received similar replies from Mr. BURNS in previous sessions, but his Bill, although introduced, failed to pass.

The Rag Flock Bill.

The Rag Flock Bill, which has been introduced by Mr. BURNS, the President of the Local Government Board, in the House of Commons has been promptly printed. The purpose is "to prohibit the sale and use for the purpose of the manufacture of certain articles, of unclean flock manufactured from rags." There is only one operative clause. It reads as follows:—

It shall not be lawful for any person to sell or have in his possession for sale flock manufactured from rags or to use for the purpose of making any article of upholstery, cushions, or bedding flock manufactured from rags or to have in his possession flock manufactured from rags intended to be used for any such purpose, unless the flock conforms to such standard of cleanliness as may be prescribed by regulations to be made by the Local Government Board, and if any person sells or uses or has in his possession flock in contravention of this Act he shall be liable on summary conviction to a fine not exceeding, in the case of a first offence, *ten pounds*, or in the case of a second or subsequent offence *fifty pounds*.

Where in any proceedings against a person charged with an offence under this Act it is proved that an offence under this Act has been committed but that the person charged with the offence—(*a*) purchased the flock in respect of which the offence was committed from a person resident within the United Kingdom who sold the flock under a warranty that it complied with the prescribed standard of cleanliness; and (*b*) took reasonable steps to ascertain, and did in fact believe in, the accuracy of the statement contained in the warranty; the person so charged shall be entitled upon an information duly laid by him to have the person who gave the warranty brought before the court, and that person may be summarily convicted of the offence, and the person originally charged shall be exempt from any fine, and the person so convicted shall, in the discretion of the court, also be liable to pay any costs incidental to the proceedings.

Where a person is charged with having flock in his possession in contravention of this Act any flock proved in the proceedings to have been found in his possession shall be deemed to be intended for sale or for use in the manufacture of such articles as aforesaid, unless the contrary is proved.

It shall be the duty of a sanitary authority to enforce the provisions of this Act within their district, and for that purpose the medical officer of health, the inspector of nuisances or sanitary inspector, or any other officer whom the sanitary authority may appoint, shall have power, if so authorised by the sanitary authority, to institute and carry on any proceedings which the sanitary authority is authorised to institute and carry on under this Act, and to enter at all reasonable times any premises in which he has reasonable cause to believe that an offence under this Act is being committed, and to examine and take samples for the purposes of analysis of any flock found therein. Provided that where a sample is so taken the occupier may require the officer taking the sample to divide it into two parts and to mark, seal, and deliver to him one part. If any person wilfully obstructs any such officer in the execution of his powers under this section he shall be liable on summary conviction to a fine not exceeding *five pounds*.

The expenses of sanitary authorities under this Act shall be defrayed—(*a*) in the case of the Mayor, Aldermen, and Commons of the City of London in Common Council assembled, out of the general rate; (*b*) in the case of the council of a metropolitan borough, as part of the expenses incurred by the council in the execution of the Public Health (London) Act, 1891; (*c*) in the case of any other sanitary authority namely, the council of a municipal borough or urban or rural district, as part of the general expenses incurred in the execution of the Public Health Acts.

All fines imposed in any proceedings instituted by a sanitary authority in pursuance of their powers and duties under this Act shall be paid to the sanitary authority and carried to the credit of the fund out of which the expenses incurred by the authority under this Act are defrayed.

This Act shall apply to Scotland with the following modifications:—(*a*) The expression "Local Government Board" means the Local Government Board for Scotland; the expression "sanitary authority" means the local authority under the Public Health (Scotland) Act, 1897; and the expression "inspector of nuisances" means sanitary inspector. (*b*) The provision respecting the Rules Publication Act, 1893, shall have effect as if section one of that Act applied to Scotland with the substitution of the *Edinburgh Gazette* for the *London Gazette*. (*c*) The expenses of a local authority under this Act shall be defrayed out of the public health general assessment levied under the Public Health (Scotland) Act, 1897.

This Act shall apply to Ireland with the following modifications: (*a*) The Local Government Board for Ireland shall be substituted for the

Local Government Board; (b) the Public Health (Ireland) Acts, 1878 to 1907, shall be substituted for the Public Health Acts; and (c) the expression "medical officer of health" shall include a medical superintendent officer of health.

Health Visitors Bill.

The purpose of the Health Visitors Bill, which was introduced in the House of Commons on March 15th by Mr. BURNS, is to enable local authorities under the Notification of Births Act, 1907, to appoint health visitors. The Bill is a short one, the text of its principal clause running thus: "1. The local authority for the purposes of the Notification of Births Act, 1907, of any area outside London in which that Act is for the time being in force may appoint suitable women, to be known as health visitors, for the purpose of giving to persons advice as to the proper nurture, care, and management of children under five years of age, including the promotion of cleanliness. 2. The qualifications to be possessed by persons appointed to be health visitors under this section shall be such as the local authority may, after consultation with their medical officer of health, require."

The Accounts of the General Medical Council.

The accounts of the General Medical Council and the Branch Councils for the year 1910, and also of the Dental Registration Fund, have been presented to both Houses of Parliament.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 15TH.

Medical Practitioners and Rebates on Motor Spirit Duty.

Mr. GINNELL asked the Secretary to the Treasury whether he was aware that rebate on motor spirit tax due to medical practitioners under the Finance (1909-1910) Act, 1910, was now paid in respect of the second financial year under that Act, but refused in respect of the first financial year under that Act, though the claims were supported by similar vouchers and proofs of actual payment; and whether he would say what further satisfaction the Commissioners of Customs and Excise required for the first year in addition to the class of documents that had satisfied them for the second. The honourable Member also asked, in view of the fact that the Finance (1909-1910) Act, 1910, entitles a medical practitioner to rebate of tax paid by him on petrol used in the practice of his profession, subject to no condition but proof of payment by him, by what authority did revenue officers withhold the rebate after all the requirements of the statute had been complied with; whether they had power to impose a condition not in the statute; whether, on their failure to collect tax due by other persons, they were entitled to withhold money due by them to the medical practitioner; and whether he would direct all rebate overdue to be paid forthwith.—Mr. HOBHOUSE replied: Under the provisions of the Finance (1909-10) Act a medical practitioner is not entitled to any rebate in respect of the duty on motor spirit used for supplying motive power to a motor-car kept for the purpose of his profession except on proof to the satisfaction of the Commissioners of Customs and Excise that the full duty has, in fact, been paid to the Crown on the spirit so used. The duty is not paid by the medical practitioner himself, nor by the dealer from whom he buys the spirit, but by the importer or manufacturer, and any voucher or certificate of payment of duty given by a dealer to a purchaser must be verified by the Customs and Excise authorities at the source at which the duty has been charged. Where claims for rebate can be so verified they are at once allowed, but the Commissioners of Customs and Excise cannot admit a claim where evidence that the duty has, in fact, been paid is not satisfactory. The practice of the Commissioners in dealing with claims for rebate is the same whether the claims relate to the year 1909-10 or 1910-11.

Medical Inspection of School Children in the Highlands.

Mr. WEIR asked the Lord Advocate whether, in view of the recommendations of the secondary education committees in Scotland in conjunction with the scheme for the medical inspection of school children, he would state the nature of the appointments which had been made in each of the Highland crofting counties.—Mr. URE answered: The following appointments have been made under the scheme for the medical inspection of school children:—*Inverness:* The county medical officer of health, Dr. J. Macdonald, has been appointed supervising medical officer, and Dr. Gordon Lang and Mr. Duncan Fletcher, school medical officers for the mainland and insular divisions respectively. Arrangements have also been made for obtaining the services of two nurses where required. *Ross and Cromarty:* The county medical officer of health, Dr. William Bruce, has been appointed supervising medical officer, and Dr. G. G. Middleton and Dr. Donald Murray, school medical officers for the mainland and insular divisions respectively. *Caithness and Sutherland:* The present medical officer of health for the two counties, Dr. G. Dick, is to be appointed joint medical officer of health and school medical officer for Caithness only. It is understood that a similar scheme is under consideration for Sutherland. No appointments have yet been made for Argyll, Orkney and Shetland, but a committee for the former county has been appointed to consider a scheme to come into force in the year 1911-12.

THURSDAY, MARCH 16TH.

Dentists and the Motor Spirit Duty.

Mr. WILKIE asked the Secretary to the Treasury whether, in view of the fact that under the Finance Act of 1909-10 medical men using motor-cars in the discharge of their professional duties were remitted part of the licence duty on petrol, he would state whether this remission was also being deemed applicable to professional dentists using motor-cars in pursuit of their duties; and if not, would he state the reason for such differentiation of treatment?—Mr. HOBHOUSE replied: The relief allowed in respect of motor-car licence duty and motor spirit duty to duly qualified medical practitioners under the Finance (1909-10) Act, 1910, is not applicable to dentists using motor-cars. With regard to the latter part of the question, I may point out that the saving of human life and suffering frequently depends upon a medical man possessing an expeditious means of locomotion, and in this respect the case of a dentist is not parallel.

Small-pox and Vaccination.

Mr. STAVELEY-HILL asked the President of the Local Government Board whether he would state what was the number of certificates of conscientious objection to vaccination received by the vaccination officers in respect of children whose births were registered during 1906, the number of statutory declarations of conscientious objection to vaccination received by the vaccination officers in respect of children whose births were registered during 1909, and the number, irrespective of the dates of the birth of the children whom they concerned in the years 1907 to 1910, respectively.—Mr. BURNS wrote in reply: The number of certificates of conscientious objection to vaccination received by the vaccination officers in respect of children whose births were registered during 1906 is 53,822. The number of certificates actually received in the years 1907-09 and in the first half of 1910, irrespective of the dates of the birth of the children, were—1907, 57,675; 1908, 162,799; 1909, 190,689; and 1910 (first half), 110,851. The other figures desired by the honourable Member are not yet available.

Mr. STAVELEY-HILL also asked the right honourable gentleman whether the official information in the hands of the Local Government Board showed that the spread of small-pox could be most effectively prevented by vaccination; whether it was the duty of boards of guardians, in whose areas the disease appeared, to take prompt measures, so far as the law allowed, to secure the vaccination or revaccination of all persons exposed to the danger of infection; and what action the Board was taking in view of the present outbreak.—Mr. BURNS furnished the following written reply: Small-pox is a contagious disease, and the most effective means of preventing its spread from the person attacked consists in removing the patient to a place of isolation and surrounding him by protected persons. Statistics relating to vaccination and small-pox obtained by my department are published, and I do not think it is necessary for me to attempt to interpret them. Boards of guardians are empowered by Section 28 of the Vaccination Act, 1867, to pay reasonable expenses incurred by them in taking measures to promote vaccination upon any actual or expected outbreak of small-pox. My officers have visited the districts in London recently affected by small-pox, and have conferred with the officials of the authorities as to the measures to be taken.

Mr. STAVELEY-HILL asked what were the areas in which cases of small-pox had been notified since January, 1911, and what was the number of such cases.—Mr. BURNS (by written answer) replied: The following list shows the counties in which cases of small-pox have been notified since January, 1911, and the number of cases notified in each: Cheshire, 8; Durham, 13; Essex, 2; Glamorgan, 1; Hertfordshire, 1; Lancashire, 26; London, 53; Middlesex, 1; Norfolk, 8; total, 118.

The Remuneration of Vaccination Officers.

Mr. STAVELEY-HILL asked the President of the Local Government Board whether he had at any time allowed boards of guardians to pay a fee to their vaccination officers for each statutory declaration of objection to vaccination received by them; and, if so, whether he would give the names of those boards of guardians and state whether their officers were still receiving such fees.—Mr. BURNS (by written answer) replied: The answer is in the negative.

Mr. STAVELEY-HILL also asked the right honourable gentleman whether boards of guardians had been advised that vaccination officers should receive gratuities in respect of the reduction in their income by the operation of the Vaccination Act, 1907; that such gratuities should be calculated on the difference in earnings at the present time and the average earnings during the years 1903-07; and that where the deficiency was likely to be permanent it was desirable to bring the officers' income to the former standard by increasing his fees; whether he had received any complaints and, if so, how many from vaccination officers to the effect that their boards of guardians had declined to follow this course; and what action he had taken in the matter.—Mr. BURNS wrote in reply: The Local Government Board has not taken any general action in regard to loss of income sustained by vaccination officers since the operation of the Vaccination Act, 1907. In many cases boards of guardians have awarded gratuities to their vaccination officers to meet the deficiencies in their incomes. The Board has sanctioned gratuities to meet the loss of income in the past, and has suggested to the guardians that where the deficiency was likely to be permanent the officers' fees should be increased. Many boards of guardians have adopted this suggestion, and the Board has sanctioned increased fees. In some cases vaccination officers have informed the Board of the loss they have sustained and that their guardians have not taken any steps to make up the deficiency. In these cases the Board has written to guardians setting out the average earnings of the vaccination officers in 1903-07 and the earnings since, and has suggested to the guardians that they should award gratuities based on the figures given and increase the officers' fees. Some boards of guardians have adopted the Board's suggestion, but others have declined to take any action. There are about 25 of the latter cases.

MONDAY, MARCH 20TH.

The Precedence of the Edinburgh Colleges.

The Marquis of TULLIBARDINE asked the Lord Advocate under what authority the Secretary for Scotland recently advised or instructed the Lord Lyon King of Arms to refuse to decide a question of precedence between the Royal College of Surgeons and the Royal College of Physicians; and whether the Secretary for Scotland had any jurisdiction, direct or indirect, over the Lyon King of Arms as such.—Mr. URE replied: Questions of precedence are, in the view of the Secretary for Scotland, exclusively for the Sovereign to decide. The jurisdiction of the Lyon King at Arms is exclusively statutory and does not embrace questions of precedence. And the Lyon King, having invited an expression of opinion on the question referred to by the noble lord, received an answer upon the lines above indicated.

The Supply of Antitoxin.

Mr. CHANCELLOR asked the President of the Local Government Board whether he had seen the report of the medical officer of health of Islington in which he recommended that inoculation with antitoxin supplied free by the borough council should be commenced the moment diphtheria was suspected, and even before the diagnosis was positive; and what action he proposed to take to prevent local authorities from encouraging and subsidising this practice.—Mr. BURNS

answered: I have seen the report referred to, but I do not propose to interfere with the discretion of the local authorities in acting upon the provisions of the Order recently issued.

Mr. CHANCELLOR also asked the right honourable gentleman, when, seeing that Section 77 of the Public Health (London) Act, 1891, and Section 133 of the Public Health Act, 1875, under which the Local Government Board Order authorising local authorities to supply diphtheria antitoxin free, applied only to cases of a temporary nature, that Order would be withdrawn.—Mr. BURNS said in reply: The fact that the sections under which the Orders authorising the supply of antitoxin have been made refer to the provision of a temporary supply of medicine and medical assistance, does not, in my opinion, necessitate or render desirable the withdrawal of the Orders.

Mr. CHANCELLOR asked whether the right honourable gentleman was aware that, in addition to supplying antitoxin free, the Kensington borough council had offered every medical practitioner within the borough a fee of 5s. for every inoculation; how many other local authorities had adopted the same practice; whether such use of public money as a premium on a form of medical treatment whose value was disputed had been sanctioned by him; and, if so, under what statute.—Mr. BURNS answered: As regards the authority for the Orders issued by the Local Government Board in August last, empowering local authorities to provide diphtheria antitoxin, I may refer the honourable Member to an answer which I gave him in November last. By the terms of the Order the arrangements as to the keeping, distribution, and use of the antitoxin are required to be in accordance with the advice of the medical officer of health. I have no complete information as to the arrangements which have been made in Kensington or elsewhere.

Vaccination in Stalybridge.

Mr. SNOWDEN asked the President of the Local Government Board whether the town clerk of Stalybridge had sent a circular to all the medical men in his town offering a free supply of lymph for vaccinations; whether the Local Government Board had supplied him with this lymph; whether, in that case, his attention had been called to the fact that only public vaccinators might legally be supplied with it; whether the Stalybridge corporation was offering free revaccination; and, if so, whether he proposed to take any action in the matter.—Mr. BURNS said, in reply: The Local Government Board has not supplied lymph to the corporation of Stalybridge, but except as to this, I understand the facts are generally as stated in the question. No action on my part seems to be called for.

Small-pox and Vaccination.

Mr. SANDYS asked the President of the Local Government Board whether, in the opinion of the medical officers concerned, any of the circumstances or statistics relating to the recent outbreak of small-pox had thrown doubt upon the utility of vaccination as a preventive of that disease; and, if so, what was the nature of these circumstances or statistics.—Mr. BURNS answered: To the best of my knowledge the answer is in the negative.

TUESDAY, MARCH 21ST.

Medical Inspection of School Children in London.

Mr. WEDGWOOD asked the President of the Board of Education whether his attention had been called to Sir Victor Horsley's criticisms on the medical inspection of school children as carried out by the London County Council; whether he would inquire into the justification for these criticisms; and, if warranted, whether he could take any steps to induce the London County Council to remedy the existing state of affairs.—Mr. RUNCIMAN replied: I have seen a newspaper report of the recent speech of Sir Victor Horsley on this subject. I have a great respect for this distinguished surgeon's opinion upon subjects on which he speaks with special authority, but I am not sure that the organisation of the medical inspection of school children is one of them. The Board is cognisant of the circumstances of medical inspection in London, and has recently made a communication to the London County Council on that matter.

WEDNESDAY, MARCH 22ND.

Epidemic at Osborne.

Major GASTRELL asked the First Lord of the Admiralty how many boys at Osborne College during the present term had suffered from measles, German measles, and pink-eye respectively.—Mr. MCKENNA replied: A hundred and fifteen cadets have had measles, 258 have had German measles, and there have been 60 cases of conjunctivitis, popularly miscalled pink-eye, but many of them were only slight and in association with attacks of measles. In the opinion of the Admiralty the existing medical staff is qualified to detect the first symptoms of disease.

Major GASTRELL further asked whether medical opinion attributed the prevalence of the illness known as pink-eye at Osborne College to the fact that part of the college was built upon the site of the stables formerly attached to Osborne House; and whether steps would be taken to remedy the existing conditions.—Mr. MCKENNA said in reply: Conjunctivitis, the disease sometimes miscalled pink-eye, cannot be said to be prevalent at Osborne. There was an outbreak of it in 1904 and it was considered by the medical authorities to be microbic in character, the organisms being spread by contagion and not air-borne. There have been a few sporadic cases since, and during the present term there have been, as I have just stated, a number of slight cases mostly in association with the current epidemic of measles. I would add that pink-eye, being an equine disease, has no known connexion with the conjunctivitis to which the cadets at Osborne have been subject.

BOOKS, ETC., RECEIVED.

AKADEMISCHE VERLAGSGESELLSCHAFT, m.b.H., Leipzig.

Das Radium in der Biologie und Medizin. Von E. S. London, Leiter der Pathologischen Abteilung am K. Institut für Experimentelle Medizin zu St. Petersburg. Price M.6.

ARNOLD, EDWARD, London.

A Pocket-book of Treatment. By Ralph Winnington Leftwich, M.D. Price 6s. net.

BAILLIÈRE, J. B., ET FILS, Paris.

Les Arythmies. Par le Docteur H. Vaquez, Professeur agrégé à la Faculté de Médecine de Paris, Médecin de l'Hôpital Saint-Antoine. Leçons recueillies par le Dr. Ch. Esmein, Chef de Clinique Adjoint à la Faculté de Médecine de Paris. Price, bound, Fr.15.

BAILLIÈRE, TINDALL, AND COX, London.

Aids to Bacteriology. By C. G. Moor, M.A. Cantab., F.I.C., and William Partridge, F.I.C. Second edition. Price, paper 3s. net.; cloth 3s 6d. net.

Military Sanitation and Hygiene. By E. Blake Knox, B.A., M.D., D.P.H. (Hons.), Captain, R.A.M.C. Price 5s. net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

Season and Disease: A Preliminary Study. By Owen H. Peters, M.D. (Reprinted from the "Proceedings of the Royal Society of Medicine," November, 1908.) Price not stated.

BIELEFELDS (J.) VERLAG, Karlstrasse, 6, Freiburg (Baden).

The Truth We Owe to Youth. A Vision of Sex. By Henry Hamill. Price not stated.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.

Tumours, Innocent and Malignant, Their Clinical Characters and Appropriate Treatment. By J. Bland-Sutton, F.R.C.S. Fifth Edition. Price 21s. net.

CHURCHILL, J. AND A., London.

The Refraction of the Eye. A Manual for Students. By Gustavus Hartridge, F.R.C.S. Fifteenth edition. Price 5s. net.

CLARENDON PRESS, Oxford.

The Works of Aristotle. Translated into English under the Editorship of J. A. Smith, M.A., Fellow of Balliol College, and W. D. Ross, M.A., Fellow of Oriel College. De Partibus Animalium. Translated by William Ogle, M.A., M.D., F.R.C.P., Sometime Fellow of Corpus Christi College, Oxford. Price 5s. net.

DEUTICKE, FRANZ, Leipzig und Wien.

Die Akute Leukämie. Von Dr. Albert Herz, gew. Assistenten der Abteilung. Price M.4.50 or K.5.40.

DULAU AND CO., LIMITED, 37, Soho-square, London, W.

Department of Applied Mathematics, University College, University of London. Drapers' Company Research Memoirs, Biometric Series VI. A Monograph on Albinism in Man. By Karl Pearson, F.R.S., E. Nettleship, F.R.C.S., and C. H. Usher, M.B., B.C. Camb. Text. Part I. With Frontispiece and Facing Plate, Provisional Preface and Pages 1–266. Issued to Subscribers Only. Atlas. Part I. Photographic Plates A-Z and AA-ZZ. Issued to Subscribers Only. Price, Text and Atlas, Part I., to Subscribers to the whole work, 35s. net.

DYBWAD, JACOB, In Kommission bei, Christiania.

Die Massenverhältnisse des Herzens unter Pathologischen Zuständen. Pathologisch-anatomische Untersuchungen. Von Sofus Widerøe. Price not stated.

FISCHER, GUSTAV, Jena.

Sammlung anatomischer und physiologischer Vorträge und Aufsätze. Herausgegeben von Prof. Dr. E. Gaupp und Prof. Dr. W. Trendelenburg. Heft 14. (Zweiter Band, Heft I.) Die Cellular-pathologie und der gegenwärtige Stand der Histologie. Rede gehalten auf der Jahresversammlung der pathologischen Gesellschaft zu St. Petersburg am 22. Oktober–4. November, 1910. Von Privatdozent Dr. G. G. Schlater. Price Pf.80.

GREEN, WILLIAM, AND SONS, Edinburgh and London.

An Introduction to Dermatology. By Norman Walker, M.D., F.R.C.P. Fifth edition. Price 12s. net.

HARPER AND BROTHERS, 45, Albemarle-street, London, W.

The Birth of Worlds and Systems. By Professor A. W. Bickerton. With a Preface by Professor Ernest Rutherford, F.R.S. Price, cloth 2s. 6d. net.; leather 3s. 6d. net.

HODGE, WILLIAM, AND CO., 12, Bank-street, Edinburgh; and 3, Bolt Court, London, E.C.

Notable English Trials Series. The Trial of the Stauntons. Edited by J. B. Atlay, M.A., Barrister-at-Law. Price 5s. net

HIRSCHFELD BROTHERS, LIMITED, 263, High Holborn, London, W.C. (STENHOUSE, ALEXANDER, 40 and 42, University-avenue, Glasgow.)

Hossfeld's Dutch Dialogues. With a Vocabulary, a Chapter on Pronunciation and the Conjugation of the Regular and Irregular Verbs. New Edition, entirely revised and enlarged. By J. M. Schnitzler, Teacher of Languages and Sworn Translator and Interpreter, Rotterdam. Price 1s. 6d.

Hossfeld's German Dialogues. With a Vocabulary, a Chapter on Pronunciation, and the Conjugation of the Regular and Irregular Verbs. New Edition, entirely revised and enlarged. By A. Hauviller. Price 1s. 6d.

HOEBER, PAUL B., 69, East 59th Street, New York City.

Manual of Cystoscopy. By J. Bentley Squier, M.D., Professor of Genito-Urinary Surgery, New York Post-Graduate Medical School and Hospital; and Henry G. Bugbee, M.D., Instructor in Genito-Urinary Surgery, New York Post-graduate Medical School and Hospital. Price $3.00 net.

IMPRIMERIE BOUCHY ET CIE., 11, Rue Hélène, Paris.

Association Médicale Internationale contre la Guerre. Actes et Manifestations Diverses (1905–1910). Price not stated.

KARGER, S., Berlin.

Jahrbuch für Kinderheilkunde und physische Erziehung. Unter Redaktion von O. Heubner, Th. Escherisch, A. Czerny. 73, der dritten Folge 23. Band. Heft 2. Ausgegeben am 1. Februar, 1911. Price not stated.

KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, London.

The International Scientific Series. Crystals. By A. E. H. Tutton, D.Sc., M.A. (New College, Oxon.), F.R.S. Price 5s.

KING, P. S., AND SON, Orchard House, Westminster, London, S.W.

Reproduction of a Printed Report originally submitted to the Bucks County Council in the year 1892, containing Letters from Miss Florence Nightingale on Health Visiting in Rural Districts. With a Prefatory Note by Sir Lauder Brunton, Bart., F.R.S., M.D. Published for the National League for Physical Education and Improvement, 4, Tavistock-square, W.C. Price 3d. net; post free, 4d.

County Councils' Association's Proposals for Poor-law Administration after Consideration of Majority and Minority Reports. Containing also Views of Royal Commissioners on the Scheme. Price 1s. net.

LEWIS, H. K., London.

Enlargement of the Prostate, its Treatment and Radical Cure. By C. Mansell Moullin, M.D. Oxon., F.R.C.S. Fourth edition. Price 6s.

MACMILLAN AND CO., LIMITED, London.

Creative Evolution. By Henri Bergson, Member of the Institute, Professor at the Collège de France. Authorised Translation by Arthur Mitchell, Ph.D. Price 10s. net.

MALOINE, A., 25-27, Rue de l'École de Médecine, Paris. LIBRAIRE DE CULTURE HUMAINE, PAUL NYSSENS, ÉDITEUR, 129, Rue Froissard, Bruxelles.

La Base de Toute Réforme. La Régénération Physique et Mentale de l'Homme par la Réforme Alimentaire. Price Fr.2.

MASSON ET CIE., Paris.

Les Eunuques d'Aujourd'hui et Ceux de Jadis. Par le Dr. Démétrius A. Zambaco Pacha. Price Fr.4.

MASSON ET CIE., Paris. GAUTHIER-VILLARS, Paris.

Encyclopédie Scientifique des Aide-Mémoire. Publiée sous la Direction de M. Léauté, Membre de l'Institut. Les Nouvelles Mycoses: Exascoses (ex-Blastomycoses), Oidiomycoses, Sporotrichoses, Botrytimycose, Oosporoses, Hémisporose. Par MM. de Beurmann, Médecin de l'Hôpital Saint-Louis, à Paris, et Gougerot, Professeur agrégé à la Faculté de Médecine de Paris. Price, paper, Fr. 2.50; boards, Fr.3.

MEISTER, LUCIUS, AND BRÜNING, LIMITED, 51, St. Mary Axe, London, E.C.

The Tuberculins and their Employment in Diagnosis and Treatment of Tuberculosis. Gratis to Readers of THE LANCET.

METHUEN AND CO., LIMITED, London.

Unsoundness of Mind. By T. S. Clouston, M.D., LL.D., F.R.S.E. Price 7s. 6d. net.

REBMAN, LIMITED, London.

The Individual and Society, or Psychology and Sociology. By James Mark Baldwin, D.Sc., LL.D., Foreign Correspondent of the Institute of France, Professor in the National University of Mexico. Price 6s. 6d. net.

SMITH, ELDER, AND CO., 15, Waterloo-place, London, S.W.

Saint Bartholomew's Hospital Reports. Edited by H. Morley Fletcher, M.D., and W. McAdam Eccles, M.S., F.R.C.S. Vol. XLVI. Price 8s. 6d. net.

SPOTTISWOODE AND CO., LIMITED, New Street-square, London, E.C.

The Medical Register: Printed and Published under the Direction of the General Council of Medical Education and Registration of the United Kingdom, pursuant to an Act passed in the Year XXI. and XXII. Victoriæ, Cap. XC., entitled An Act to Regulate the Qualifications of Practitioners in Medicine and Surgery. 1911. Price 10s. 6d.

UNIVERSITY PRESS, Cambridge.

Observations upon the Natural History of Epidemic Diarrhœa. By O. H. Peters. M.D., D.P.H., Mansfield. (From *The Journal of Hygiene*, Vol. X., No. 4, December, 1910.) Price not stated.

WAGNER, JOSEPH F., New York.

Marriage and Parenthood. The Catholic Ideal. By the Rev. Thomas J. Gerrard, author of "Cords of Adam," "The Wayfarer's Vision," &c. Price not stated.

WHITAKER'S ALMANACK OFFICE, 13, Warwick-lane, London, E.C.

The Coronation Regalia. An Excursion into a Curious Bypath of Literature. By W. H. Stacpoole, B.A., LL.D., of the Inner Temple, Barrister-at-Law. Price 1s. net.

WRIGHT AND POTTER PRINTING CO., State Printers, 18, Post Office-square, Boston.

Forty-first Annual Report of the State Board of Health of Massachusetts. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BADGEROW, GEORGE W., F.R.C.S. Eng., has been appointed Surgeon to the Throat Hospital, Golden-square.

BARFORD, A. M., L.R.C.P. Lond., M.R.C.S., has been appointed County Medical Officer and Medical Inspector of Schools to the Isle of Wight County Council.

BROWN, H. G., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Tredegar District of the counties of Monmouth and Glamorgan.

FURBER, E. P., L.R.C.P. Lond., M.R.C.S., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

GLOYNE, S. ROODHOUSE, M.D. Leeds, has been appointed Pathologist to the City of London Hospital for Diseases of the Chest.

HEATH, H. LLEWELLYN, D.P.H. Cantab., has been re-elected Medical Officer of Health of the County of East Suffolk.

JONES, E. S., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the King's Cliffe District of the county of Northampton.

MACEWEN, H. A., M.B., M.S. Glasg., has been appointed a Medical Officer to the Local Government Board.

MARTIN, P. S., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician of University College Hospital.

MOFFATT, C. W. P., M.R.C.S., L.R.C.P., D.P.H., has been appointed Medical Superintendent to the Bury and District Joint Hospital Board.

MOORE, F. J., L.R.C.P. & S. Irel., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

MORGAN, D. J., M.B., B.C. Cantab., D.P.H., has been appointed Medical Officer and School Medical Officer to the Glamorgan County Council.

MURRAY, MARY D., M.B., B.S. St. And., has been appointed Medical Officer to the Leeds Board of Guardians.

PHILLIPS, MILES H., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Honorary Acting Medical Officer to the Jessop Hospital for Women, Sheffield.

ROBERTS, THOMAS, M.B., M.S. Edin., has been appointed Medical Officer of Health of the Borough of Wrexham.

SWETE-EVANS, W. B., M.D., B.C. Cantab., M.R.C.S., has been appointed Honorary Assistant Medical Officer to the Southport Infirmary.

YEARSLEY, MACLEOD, F.R.C.S. Eng., has been appointed Honorary Consulting Aural Surgeon to the Royal School for Deaf and Dumb Children, Margate.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR COUNTY HOSPITAL.—Resident House Surgeon. Salary £70 per annum, with board and residence.

BANGOR, CARNARVONSHIRE AND ANGLESEY INFIRMARY.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Assistant Surgeon. Also Resident Medical Officer for six months. Salary at rate of £60 per annum, with board and residence.

BETHNAL GREEN INFIRMARY AND WORKHOUSE, Cambridge Heath, E.—Assistant Medical Officer. Salary at rate of £100 per annum, with board, residence, and washing.

BIRKENHEAD BOROUGH HOSPITAL.—Senior Resident House Surgeon. Salary £100 per annum. Also Junior Resident House Surgeon. Salary £80 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons for six months. Salary at rate of £75 per annum, with board and residence.

BOLTON INFIRMARY AND DISPENSARY.—Third House Surgeon. Salary £90 per annum, with apartments, board, and attendance.

BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—Assistant Pathologist. Salary £100 per annum, with board, residence, and laundry.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Junior Resident Officer. Salary £90 per annum, with rooms and attendance.

BUXTON, DEVONSHIRE HOSPITAL.—Pathologist. Salary at rate of £250 per annum.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer. Salary £160 per annum, with board, lodging, washing, &c.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Resident House Surgeon.

CHESTER GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with residence and maintenance.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Surgeon. Salary £80 per annum, with board, residence, and washing. Also House Physician. Salary £80 per annum, with board, residence, and washing.

DARLINGTON, BOROUGH OF.—Medical Officer of Health. Salary £500 per annum.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians and Two House Surgeons for six months. Salary in each case £50 per annum, with board, residence, and washing.

DUBLIN, ROYAL VICTORIA EYE AND EAR HOSPITAL, Adelaide-road.—House Surgeon. Salary £40 per annum, with board and residence.

EDINBANE, ISLE OF SKYE, GESTO HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with furnished house, &c.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—Ten Clinical Assistants.

GLASGOW MATERNITY AND WOMEN'S HOSPITAL (OBSTETRICAL DEPARTMENT).—Two In-door House Surgeons and Two Out-door House Surgeons. Also Out-door House Surgeon to West-end Branch (female).

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, Gloucester.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing.

HAMPSTEAD GENERAL HOSPITAL.—House Surgeon for six months. Salary at rate of £70 per annum, with board and residence.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

HULL ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Assistant House Surgeon (female). Salary £40 per annum, with board and laundry.
KENSINGTON DISPENSARY AND CHILDREN'S HOSPITAL, 49, Church-street, Kensington, W.—Vacancy on Honorary Medical Staff.
LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £100 per annum, with board and lodging.
LLANELLY URBAN DISTRICT.—Medical Officer and Schools Medical Officer. Salary £400 per annum.
MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.
MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, near Manchester.—Resident Medical Officer, unmarried. Salary £90 per annum.
MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—Honorary Surgeon
MANCHESTER SCHOOLS FOR MOTHERS (ANCOATS BRANCH).—Honorary Medical Officer.
MANCHESTER WORKHOUSE HOSPITALS, Withington.—Junior Resident Medical Officer. Salary £100 per annum, with rations, apartments, and attendance.
NEWCASTLE-UPON-TYNE, HOSPITAL FOR SICK CHILDREN.—Resident Medical Officer. Salary £100 per annum, with board, lodging, and laundry.
NORTHAMPTON, NORTHAMPTONSHIRE SANATORIUM, Creaton.—Resident Medical Officer. Salary at rate of £200 per annum, with board, apartments, and laundry.
NORWICH, CITY OF.—Assistant Medical Officer of Health. Salary £150 per annum, with rooms, board, and washing.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Resident Medical Officer. Salary £120 per annum, with board, residence, and laundry.
ROCHDALE INFIRMARY.—Junior House Surgeon, unmarried. Salary £30 per annum, with board, residence, and laundry.
ROYAL ARMY MEDICAL CORPS.—Twenty Commissions.
ROYAL EAR HOSPITAL, Soho.—House Surgeon. Salary £40 per annum.
ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Clinical Assistants.
ROYAL NAVAL MEDICAL SERVICE.—Twelve Commissions.
ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £20 per annum, all found.
ST. MARY'S HOSPITAL, Paddington, W.—Assistant Ophthalmic Surgeon.
ST. THOMAS'S HOSPITAL.—Physician.
SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—House Surgeon, unmarried. Salary £60 per annum, with board and residence.
SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.
STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.
SUNDERLAND INFIRMARY.—Two House Surgeons. Salary £80 per annum, with board, residence, and washing.
SWANSEA, COUNTY BOROUGH OF.—Medical Officer of Health. Salary £500 per annum.
THROAT HOSPITAL, Golden-square, W.—Honorary Assistant Surgeon.
TORQUAY, TORBAY HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with residence, board, and washing.
TRANSVAAL MINERS' PHTHISIS SANATORIUM, Springkell, Modderfontein, near Johannesburg.—Medical Superintendent. Salary £1000 per annum, with furnished residence.
WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Surgeon.
WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—House Surgeon. Salary £100 per annum. Also Junior House Physician. Salary £75 per annum.
WEST LONDON HOSPITAL AND POST-GRADUATE COLLEGE, Hammersmith-road, W.—Clinical Assistants. Also Three Non-resident Assistant House Surgeons, each for three months.
WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry. Also Resident Surgical Officer. Salary £125 per annum, with board, apartments, and laundry.
WORCESTER GENERAL INFIRMARY.—House Physician. Salary £100 per annum, with board, residence, and washing.
YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Amble, in the county of Northumberland; and at Bradford, West, in the county of York, West Riding.

Births, Marriages, and Deaths.

BIRTHS.

BRISTOW.—On March 20th, at 102, Harley-street, W., the wife of Walter Rowley Bristow, M.B., B.S. Lond., F.R.C.S., of a daughter.
POTTS.—On March 16th, at Ingley Lodge, Edgbaston, the wife of W. A. Potts, M.D., of a son.
RIDDELL.—On March 16th, at Highgate, Kendal, the wife of David Riddell, M.D., a son.
STUBBS.—On March 7th, at Highfield, Tulse Hill, S.W., the wife of John D. Stubbs, M.B., B.C. Cantab., of a son.

DEATHS.

PALEY.—On March 13th, at Heathfield Lodge, Ealing, William Paley, M.D., formerly of Peterborough, in his 95th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL FOLK-LORE IN NORWAY.

THROUGH a circular in the *Norsk Skoletidende* of March 4th an interesting attempt has been made to enlist the help of the teachers of Norway in collecting materials for an account of medical folk-lore in that country. A list is first given of about 60 ailments, epidemic complaints, internal complaints, diseases of hair, skin, or nails; and opposite the scientific name are to be put the various popular names in the dialects. In a second division any popular remedies drawn from the animal, vegetable, or mineral kingdoms are to be noted, also any peculiar methods of a surgical character used by midwife, dentist, barber, or the like. Particulars are also asked for with regard to alleged cures by superstitious means, such as spells, incantations, amulets, or wells of healing; and the names, or at least the initials, are to be given of herbalists, quacks, "wise women," who in present or in past times have played a part in their respective neighbourhoods. The particulars are to be sent in to two physicians, Dr. F. G. Gade and Dr. Grön of Christiania, who receive a grant from the Nansen Fund for the expenses of the inquiry.

THE HANDLING OF HOT SUBSTANCES BY ORIENTALS.

To the Editor of THE LANCET.

SIR,—The article in THE LANCET of March 18th regarding "An Egyptian Holy Man" casts doubt on the feats of holding a hot iron bar between the teeth and of handling red-hot embers without incurring a lesion of the skin. May I draw your attention to the following fact within my experience?

When living in camp with some of Professor Flinders Petrie's workers from Quft (Qift) it was quite usual to see the cook-boy Ibrahim Abd El Kerim, dipping his hand into boiling oil while frying an omelette. We used to watch him deliberately pass his hand under the omelette, fold it over, and afterwards lift it out on to a dish.

This is a peculiarity of handling hot substances which comes to the European as a surprise, but which to the Arab seems a matter of course.

I am, Sir, yours faithfully,

South Hampstead, March 20th, 1911. LINA ECKENSTEIN.

THE CHILD EMIGRATION SOCIETY.

THIS society, which was founded in 1909 as a result of a paper read at the Colonial Club, Oxford, by Mr. Kingsley Fairbridge of Rhodesia, a Rhodes scholar, of Exeter College, held its first annual meeting last year, at which definite rules were adopted for the conduct of the society's operations, and an executive committee was elected. The balance sheet showed that £660 had been raised. The basis of its action is the conviction that no permanent solution of any of our great social questions—pauperism, crime, imbecility, sickness, unemployment, &c.—is possible until we are prepared to guarantee a fair start in life to the thousands of underfed and ill-treated children in the land. The effect of existing rescue and training societies is to throw their protégés into an overcrowded labour market to compete with the children of self-supporting workmen on terms disadvantageous to the latter. This would be obviated by following Mr. Fairbridge's suggestion to transfer the training ground of many of these children to the overseas dominions and to fit them to compete in a market where the demand for efficient British labour is always greater than the supply. Mr. Cuthbert W. H. Whalley, Claddagh, Woodstock-road, Oxford, who has received from the society a roving commission as organising secretary, sends us an appeal asking for donations, subscriptions, meetings, voluntary workers, and speakers to coöperate in the work of opening in 1912 such an experimental school, either in Newfoundland, where a free grant of land has been offered by the Government, or wherever else a grant of suitable land can be secured.

ELECTRO-MEDICAL APPARATUS.

A VERY instructive and complete catalogue of electro-medical apparatus has recently been issued by Messrs. Newton and Co., of 3, Fleet-street, Temple Bar, London. Considerable space is devoted in the introductory chapters to the explanation of the principles and practice of electrical methods. It is an undoubted fact that there are still a good many medical practitioners who have not concerned themselves seriously to give electricity a systematic study or to understand the many terms used in regard to its applications. Information on such points is here given, which should be of distinct assistance to the beginner in such a study. Besides, there are a great number of illustrations of the various apparatus employed in electro-therapeutics made by this firm. We note that amongst other recent introductions the Dessauer "one-flash" X ray apparatus is described. With this apparatus the exposure is not measured by seconds, but consists of one single discharge only. This gives the unquestionable advantage that every organ of the body can be photographed with all movement eliminated.

THE WARD PIN-CUSHION.

THIS consists of an improved metal case for the reception of safety-pins and a cushion for ordinary pins. The advantages claimed for it are: (1) The safety-pins are enclosed in the case, easy to extract, and free from any encumbrance; (2) the ordinary pins are pressed in a pad of wool which can be removed, destroyed, and replaced by sterilised wool; and (3) the case (with pins) complete can be sterilised by boiling. The case is made in aluminium in the shape of a cross, and will hold one dozen safety-pins from 1 in. to 2½ in. It can be attached to the apron by either safety-pin or chain. The inventor is Mr. J. Hayward, 63, Francis-street West, Hull.

R. H.—We do not know the stove in question. The whole subject has been taken by our correspondent into a very technical region. We suggest that he should get "Gas Fires and Chimney Flues," by E. W. Browning, Office of *Journal of Gas Lighting*, and "Model Heating," the catalogue of the Gas Light and Coke Company, Horseferry-road, S.W., where he will find the views held by THE LANCET set out and largely endorsed. We will try to obtain for our correspondent exact answers to his questions.

D. M. M.—We are unable to find the reference. We know of no such use of a rubber ball, but there does not seem to be any reason why a rubber ball should not be used in place of the usual boxwood one.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for March, and April, 1911:—

March 28th–April 25th (Tunis).—Exhibition of Hygiene.
April 4th–7th (London).—Fourth Annual Nursing and Midwifery Conference and Exhibition.
,, 18th–20th (Paris).—Third Congress of Physiotherapy of French-speaking Physicians.
,, 18th (Berlin).—Tenth Congress of the German Orthopædic Surgery Society.
,, 19th–22nd (Berlin).—German Surgical Congress. (Fortieth Annual Meeting.)
,, 19th–22nd (Wiesbaden).—Twenty-eighth German Congress of Internal Medicine.
,, 20th–22nd (Groningen).—Thirteenth Nature and Medical Congress.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 22nd, 1911.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 16	29·53	N.	0·23	73	46	35	37	38	Cloudy
,, 17	29·76	S.W.	...	64	46	35	36	37	Cloudy
,, 18	29·78	E.	0·02	64	46	37	40	42	Overcast
,, 19	29·85	E.	0·01	51	42	39	39	41	Overcast
,, 20	29·75	S.E.	...	89	52	40	42	43	Fine
,, 21	29·74	E.	0·01	77	57	40	43	44	Raining
,, 22	29·89	S.E.	...	91	59	40	42	42	Overcast

The following journals, magazines, &c., have been received:—Classical Review, Birmingham Medical Review, Bulletin of the Johns Hopkins Hospital, Maryland Medical Journal, American Journal of Obstetrics, Journal of Tropical Medicine and Hygiene, Pacific Medical Journal, Ash's Monthly, South African Medical Record, Century Illustrated Monthly Magazine, Bulletin de l'Association Française pour l'Étude du Cancer, La Revue du Cancer, St. Louis Medical Review, American Journal of Surgery, Sleeping Sickness Bureau Bulletin, Clinique Ophtalmologique, Indian Public Health, Symons's Meteorological Magazine, British Journal of Dental Science, Revista Dental, Archivos Españoles de Neurologia, Psyquiatria y Fisioterapia, Revista Stiintelor Medicale, Malaya Medical Journal, Hospital Assistant, Indian Medical Record, The Therapist, American Journal of Clinical Medicine, Jahrbuch für Kinderheilkunde, Medical Chronicle, Albany Medical Annals, Recueil d'Ophtalmologie, American Medicine, Interstate Medical Journal, Bulletin of the Office International d'Hygiène Publique, Transactions of the Ophthalmological Society of the United Kingdom, Bristol Medico-Chirurgical Journal, Journal of Pathology and Bacteriology.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

MONDAY.
ODONTOLOGICAL SECTION (Hon. Secretaries—E. B. Dowsett, W. W. James): at 8 P.M.
Paper:
Mr. H. J. Morris and Professor McWilliam: The Comparative Elasticity and Internal Structure of Cast and Rolled Gold Plate.
Casual Communication:
Mr. Howard Mummery: A Short Preliminary Note on the Distribution of the Nerves of the Dental Pulp.

TUESDAY.
MEDICAL SECTION (Hon. Secretaries—A. F. Voelcker, Sir John F. H. Broadbent, Bt.): at 5.30 P.M.
Papers:
Dr. Thomas Lewis: Electro-cardiograms.
Dr. Samuel West: Cases of Suffocative Catarrh in the Adult (Acute Pneumococcal Bronchitis).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Clinical Evening. Cases will be exhibited by Dr. E. Wynter, Dr. Langmead, Mr. W. Trotter, Mr. W. H. Battle, Dr. StClair Thomson, and others. Patients will be in attendance at 8 P.M.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.30 P.M., Mr. C. B. Lockwood: Fractures of the Patella and their Surgical Treatment. (Harveian Lecture.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. J. M. Bruce: Clinical Study of Cardio-vascular Regeneration (Lumleian Lectures).

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Mr. W. Evans: Clinique (Skin). 5.15 P.M., Lecture:—Mr. A. Lane: Intestinal Stasis.
TUESDAY.—4 P.M., Dr. W. Hunter: Clinique (Medical). 5.15 P.M., Lecture:—Dr. A. F. Tredgold: The Borderland of Insanity.
WEDNESDAY.—4 P.M., Mr. J. T. Walker: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. H. Fisher: Some Cases of Lesions of the Optic Chiasma.
THURSDAY.—4 P.M., Mr. P. J. Freyer: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. A. H. Tubby: Treatment of Scoliosis in Childhood and Adolescence.
FRIDAY.—4 P.M., Dr. D. McKenzie: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. E. Gillespie), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).
TUESDAY.—Clinic:—10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient: (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

TUESDAY.—5.15 P.M., Demonstration:—Mr. G. E. Waugh: Diseases of Joints—Shoulder Joint, Wrist Joint, and Carpus. (Special Post-Graduate Course.)

THURSDAY.—4 P.M., Mr. Fairbank: Appendicitis in Children.

FRIDAY.—5.15 P.M., Demonstration:—Mr. G. E. Waugh: Diseases of Joints—Arthritis of Vertebral Column, Simple, Tubercular, Syphilitic. (Special Post-Graduate Course.)

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3.45 P.M., Dr. D. McKenzie: Ear.

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Dr. F. C. Moore: Treatment of Gastric and Duodenal Ulcer. (Post-Graduate Clinic.)

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (29th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (30th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (31st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor. 9 A.M., Major, 2 P.M.).

SATURDAY (1st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.) Hospitals operations are performed daily.

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THE INDEX TO THE LANCET.

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